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A METHOD
OF
TEACHING THE DEAF AND DUMB SPEECH, LIP-READING AND LANGUAGE.

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OF
TEACHING THE DEAF AND DUMB

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TEACHING THE DEAF AND DUMB SPEECH, LIP-READING, AND LANGUAGE

WITH ILLUSTRATIONS AND EXERCISES

BY

THOMAS ARNOLD

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TO THE

PARENTS OF THE DEAF AND DUMB

For more than twenty years, spent in the Education of the Deaf, I have laboured to discover and employ the best methods of instructing them. This work is part of the fruit of those labours. Had circumstances been more favourable, it would have been better. As it is, permit me respectfully to dedicate it to you, in the hope that it may lighten your affliction by promoting the mental emancipation of your children

THOMAS ARNOLD

Middle Class School for the Deaf and Dumb
Fair View, Cliftonville
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PREFACE.

THIS WORK has been written to supply a deficiency. There is no other in our language, that the author can discover, which supplies the public with an exposition of the methods employed in the education of the deaf and dumb in speech and lip-reading, at once so systematic and practical as to enable a teacher, who has not enjoyed any previous training, to take up and pursue the process with a reasonable hope of success. The labour arising from this deficiency has been very great, but never regretted. Neither teachers nor books could be found. Everything had to be discovered. But progress stimulated to fresh effort, till at last every difficulty was overcome. Now the author wishes to smooth the path of others, by providing them with all that is essential to the work in principle and illustration. He has striven most of all to make his meaning clear, and by arranging the subjects and illustrations in the order required by the learner, rather than in that which science might have dictated, endeavoured as much as possible to place everything at hand where most needed. Some may question or suspect the author's competence to undertake such a task. On this point he would prefer to be silent. It may suffice to say that forty years ago he was trained under an able master in the French method, when he made his first essays in teaching the deaf to speak with some success; that for the last twenty years he has employed the German method exclusively; that one of his pupils, Mr. Farrar, first passed the Cambridge Local Examination with honours in classics and mathematics; and in January last Matriculated in the London University;[1] that he has also been able to compare his methods with those of the most advanced masters in Germany, France, Switzerland, Italy, and America; and can say without reserve that he has arrived independently at the system called German, and in teaching language has sufficient reason for concluding that he has applied a principle with marked success which must one day displace all others. The quotations which he makes from the works of foreign masters are rather to show that he is not alone in the opinions he advances, than to imply that he was indebted to them in the prosecution of his work. He is far from thinking that his method is perfect. Much still remains to be achieved in the education of the deaf. The best teachers are learners. Should any one then be inclined to find fault with his work, the author will not complain if it leads to the production of a better, and the wider diffusion of the knowledge hitherto confined to a few, of such essential importance to those who are as isolated from society through their deafness as Crusoe in his solitary island.

The price of the work is a matter of regret to the author, but the expense of production is so great, and the number requiring it so limited, that a less charge would have involved him in actual loss by its publication.

It may not be out of place here for the author to acknowledge his great obligations to Mr. W. S. Bessant, his associate,—who has had considerable experience in the oral education of the deaf,—for the time and care he has given to the practical application of the principles of this work, as well as to its correction in passing through the press.

---

[1] Mr. Farrar, before he was three years old, lost his hearing from scarlet-fever, and therefore owes nothing to hearing, for he was absolutely deaf and dumb when he came under tuition.

THE ELEMENTS OF SPEECH

PHYSIOLOGICALLY ARRANGED.

VOWELS.

Palatal		
ou w	*ỉ ē*	*ỉ y*
Labial	Graduated	Guttural
ū oo	*ȧ*	*ê*
ŭ	*ĕ*	
ŏ ā̆	*ā*	*â*

These, according to the table, are arranged in four classes—the 1st graduated, 2nd labial, 3rd palatal, and 4th guttural. See sec. 47, p. 50.

***q* connects vowels and consonants, for its initial is *k* and its final *w*.**

CONSONANTS.

1st Class.

	Pure	Lip and teeth	Tongue and teeth	Tongue, gum and teeth	Palate
Aspirates with corresponding semi-vowels	*h*	*f*	*th*	*s c*	*sh*
		v	*th̨*	*z*	1 element of *j*

2nd Class.

		Lip	Tongue and gum	Tongue and palate
Stops	breath	*p*	*t*	*kc*
	voice	*b*	*d*	*g*
Corresponding Vowels.	Nasal	*m*	*n*	*ng*
	Trills	*r*	*r*	*r*
	Lingual		*l*	

Compounds of both classes

ch=*t sh* sharp

x=*k s*

j=*d sh* vocal

Similarity of organic adjustments determined this classification, as at once the simplest and most convenient for teaching the deaf and dumb the elements of speech.

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b

INTRODUCTION.

HISTORIC.

NOTHING MORE is attempted in this sketch than a condensed account of the rise and progress of the rival systems now employed in the education of the Deaf and Dumb, as a fitting introduction to the exposition of the one which after a prolonged trial has been preferred. It is recommended because its principles are in harmony with nature and science, and not in the spirit of a blind partisanship which cannot see anything good in any other system. Wedded at first to neither, the author has striven honestly to test their merits in the practical work of education, and results have convinced him that the German method is far superior to the French for the mental, moral, and social training of the Deaf and Dumb.

The social condition of the Deaf and Dumb for thousands of years was one of hopeless ignorance and general neglect. Aristotle says of them: 'As many as are dumb from birth are senseless.' And St. Augustine considers them 'for ever deprived of the heavenly blessings of the Faith.' Roman law, too, excluded them from all participation in civil rights. The only beam of light and hope that fell upon them, in that long night of darkness and silence, was when the Son of God took one aside that was brought to Him, 'put his fingers into his ears, spat and touched his tongue, and then looking up to heaven, he sighed, and said unto him, Ephphatha, that is, Be opened, and he spake plain.'—Mark vii. 33, 34. That sigh of profound compassion, those gentle touches and the omnific word, prove that Jesus had not to do with a soulless, incapable being, but rather with one who only needed the approaches to his mind unclosed, in order to speak plainly. Nothing more is heard of them till the fifteenth century, except the story told by the Venerable Bede, in his 'Hist. Eccl.' lib. v. cap. 2, of one whose speech was restored miraculously or otherwise by the celebrated St. John of Beverly, A.D. 685. It runs thus: 'Now there was in a village not far distant a certain deaf and dumb youth who was well known to the bishop, for he had been in the habit of coming frequently before him for the purpose of receiving alms. This youth could not utter a single articulate sound, and moreover, had such a scurvy and such sores on his head that no hair could ever grow on the upper part of it; and what remained seemed to stand out in a circle like bristles. The bishop gave orders that he should be brought to him, and that a small hut should be built for him in the grounds of his own palace, where he might dwell and receive a daily allowance from his own attendants. At the end of a week, in Lent, on the next Lord's Day, he ordered the poor fellow to come into his presence. When he had come he ordered him to thrust forth his tongue out of his mouth, and show it to him. Then taking hold of him by the chin, he made the sign of the holy cross on his tongue. This done, he told him to draw it back again into his mouth, and to speak. "Say some word," said he; "Say Gae—or Yea." That in the language of the English is a word expressing affirmation, I consent, that is, it means "Yes." Immediately his tongue was loosed. He said what he had been ordered. The bishop added the names of the letters: "Say A," he said A; "Say B," he said this too. And when he repeated the names of the letters as the bishop said them one by one, the latter went further and gave him syllables and words to say;

and when in all these instances he at once replied, he told him to say longer sentences and he did so. Nor did he through the whole of that day and the following night, as long as he could keep awake—so they report who were present—cease saying something and revealing to others the secret of his mind and heart as he never could before; like that man long lame, who, when cured by the apostles Peter and John, "leaping up, stood and walked, and entered with them into the temple, walking and leaping and praising God," glad, of course, to have the use of his feet, of which he had been deprived for so long a time. The bishop also shared his joy at his cure, and gave orders to a doctor to devote his attention to curing also the scurvy on his head.'

Had science something to do with this restoration? The account implies that more than the supernatural was employed. The manner of teaching him betrays the skill of one who understood something of the imitative process by which the deaf learn to speak. Ignorance and superstition may have clothed a real work of art with the supernatural, because no one had any other solution to furnish. Either this or a great miracle was wrought by the faith of our countryman.

Rodolph Agricola, a Professor of Philosophy at Heidelberg, near the close of the fifteenth century, tells of 'a person deaf from his birth, and consequently dumb, who had learned to understand all that was written by others, and who could also express his thoughts by writing as if he could speak.' But the honour belongs to Italy, as the first of the nations to scatter the seeds of the education of the deaf on the field of the future.

Gerome Cardan, of Pavia, called Degerando, from his estate, was born in 1501. He was a great mathematician and natural philosopher. Possessed of a penetrating genius, restless, ambitious, and curious in his inquiries, he turned his attention to the state of the deaf and dumb.

He had commenced his career as a physician, and studied the organs of speech. His conclusions were therefore different from those of the ancients. He perceived that intellectually they were like other men, and boldly proclaimed, 'That the dumb can be made to hear by reading and speak by writing.' In his 'Paralipomenon,' lib. iii. t. 3, he says: 'We can make the deaf and dumb hear by reading and speak by writing. For the memory after a course of thinking comprehends, for example, that "bread" signifies "what is eaten." In this way the dumb reads by his reason as it were in a picture; for by means of this faculty, although nothing is referred to sounds, not only objects, but actions also are made known to him by reason of their successive phases. And just as, after seeing a picture, we may draw another picture, guided simply by a conception of the object represented, such also is it with regard to letters. It is true, the undertaking is difficult, but it is nevertheless one which the deaf can accomplish. Even if you do not gain your end, from great difficulties, great advantage and greater glory and honour are derived; for it is not the lot of every one to go to Corinth!'

These are pregnant words, but they did not immediately produce any fruit. Cardan was a philosopher and not a practical teacher of the deaf. Others had to water what he had sowed. Cardan visited England in the reign of Edward VI., and was well received by the learned at the time. Afterwards he taught mathematics in Milan and Bologna. His sympathy for the deaf, and earnest efforts to emancipate them from the anathemas of the philosopher and theologian under which they had so long suffered, will ever make his memory dear to them. Italy had struck a spark, but Spain fanned it into a flame. The work itself of educating the deaf was first attempted by a Spanish Monk, Pedro de Ponce, a Benedictine of the Monastery of St. Salvador, in the Kingdom of Leon, born about 1530. Ambrosio Morales relates of him, that he educated two brothers and a sister of the Constable of Castile, and a son of the Grand Justicia of Aragon, all of whom were born deaf and dumb. Their progress was so rapid under his tuition, that in a short time they were not only able to read and write correctly, but also to answer any question put to them. One of them, who died at twenty-one, understood Latin and Italian, and was learning Greek before his departure. Another of Ponce's pupils, a Benedictine, was able to make confessions and explain the Creed by speech. Sir Kenelm Digby, who had accompanied the Prince of Wales to the Spanish Court, relates that he often conversed with the young Lord Don Pedro de Valasco, and that he could speak as distinctly as any man. Ponce published his methods of teaching, but the work was lost. No doubt it fell into hands that profited by its contents.

The register of his monastery contains this entry about him: 'He was distinguished by his eminent virtue, and obtained a just celebrity throughout the world by instructing deaf mutes to speak.' From what Valasco relates of himself, we gather that he was taught at first by writing, and afterwards learned to speak. 'When I was a child,' he says, 'I knew nothing: I began first to write down the things that my master showed me, and afterwards I wrote down all the Spanish words in a book which was made for that purpose. Afterwards, with God's assistance, I began to spell, and then to pronounce with all the force I could, though much saliva came from me.' The confession in the last sentence indicates the immaturity of Ponce's method of teaching speech. But he had everything to invent; no wonder his means were imperfect. He was a man of genius, and laid the foundations on which all who succeeded him had to build.

Jean Pablo Bonet, another Spanish monk, took up the work. He was Secretary to the Constable of Castile, and is said to have been attached to the secret service of the King of Spain. Out of friendship for the Constable, he undertook the education of his brother, deaf and dumb from the age of two years. There is no direct proof of his being in possession of Ponce's work, but it may be reasonably presumed. Spain had made great progress in literature and philosophy. Her colleges were crowded with the youth of Europe. The Moors had imported Greek literature, and the revival of learning took place there. The wider diffusion of knowledge and freedom of intercourse among scholars in that age scattered wide the seeds sown by Ponce. Bonet was himself a man of learning, and successful in the education of the young nobleman. He also published a work called 'Reductio de las Litteras y Arte para enseñar a hablar los Mudos;' or 'The Reduction of Letters'—assigning their phonetic value, probably—and the 'Art of Instructing the Deaf and Dumb to Read.' In this work he recounts his methods, which were 'artificial pronunciation, the manual alphabet, writing and gestures, or the language of signs.' He enters into minute details, which no doubt proved very useful to the Abbé De l'Epée, into whose hands the book fell, in the development of his own system. 'In the year 1603,' says Pendola, the venerable Principal of the Asylum for the Deaf at Sienna, 'two celebrated works by Fabrizio di Acquapendente saw the light. He was a physician, and celebrated for his wisdom and his discoveries. In these works he described the phenomena of vision, of voice, and of hearing. He also treated of language and the instruments for instructing the deaf and dumb.' Giovanni Bonifacio, a distinguished jurisconsult, succeeded him. In 1616 he wrote 'The Art of Signing,' and showed how by the aid of signs language could be made sensible, or visible; and truly, if Bonifacio had not occupied himself with the means by which our artificial language could be taught to the deaf and dumb, but with showing how great are the riches of the language of action, it might be said, he would have left a treasury, by drawing on which most useful applications might have been made. But a greater benefit to the education of the deaf and dumb was found in the works of P. Fr. Lana-Terzí, a Jesuit of Brescia, and Professor of Rhetoric at Terni. He was born in 1631. In his 'Prodromo ovvero Sagio de alcun Invenzioni nuove premesso all' Arte Maestra,' or 'Preface or Essay on some New Inventions prefixed to the Master Art,' published in Brescia 1670, he occupies himself about writing in cipher, and about the means to be used in teaching the blind to read and write, and so is led on to expound those which might serve for the education of the deaf; explained how the positions and the movements of the organs should be examined, to form the articulations; and how quick the deaf and the dumb are to imitate and then to understand the movements of the lips of others. 'It should be considered,' he says, 'that in pronouncing each letter of an alphabet—Italian, Greek, Hebrew, or any other—different movements of the lips, of the tongue, of the teeth, or all together are necessary. Then opening the mouth more, as in *a*, or less, as in *e*, or drawing the lips more tightly and then opening them as in *b*, or opening and closing them as in *c* (*ch*), and so for the rest. That which succeeds in the single letters, equally succeeds in the combined: first in syllables, and then in whole words. If, then, any one would accustom himself to discern all these differences of motions, he would also understand whatever was said by another, though he might not hear the voice; and consequently learn to pronounce the same words, and be able to imitate such movements of the lips, the teeth, and the tongue. Nor would it be thought so difficult as at first sight it had appeared.' All this is admirable, and might have blessed thousands, had the author and the nation seen it their duty to educate all the deaf, instead of contenting themselves with a favoured few, children of the noble and the wealthy. The method, too, would have obtained a firm footing, and Italy, instead of in the latter part of the nineteenth century, would have celebrated the introduction of the oral method in the seventeenth.

But what was England doing for the deaf at this time ? We had made considerable advances as a nation. Our literature was not inferior to that of France and Spain. Bacon had laid the broad foundations of modern science on the ministry of nature. Was there no one to apply it to the neediest ? Yes, John Bulwer, a physician, made the first essay in 1648, when he published his 'Chironomia, or the Art of Manual Rhetoric,' and 'Chirologia, or the Natural Language of the Hand ;' hence he was called The Chirosopher. But this was not all his system. He would lead the deaf also to a knowledge of spoken language. His chief work was 'Philocophus : or, The Deaf and Dumb Man's Friend,' and exhibited 'the philosophical verity of the subtile art which may enable one with an observant eye to hear what any man says by the movement of his lips.' Upon the same ground, with the advantage of an historical exemplification apparently proving that a man borne deafe and dumbe may be taught to heare sounds of words with his eye and thence learn to speak with his tongue. This work was in advance of all others at the time, but unfortunately its author never applied its principles to the education of the deaf.

Scotland, too, as we might expect, was not much behind in this good work. George Dalgarno, born at Aberdeen and educated at the University there, but who made Oxford his home, and kept a Grammar School, wrote a book called the 'Ars Signorum Vulgo Character Universalis et Lingua Philosophica' : The Art of Signs : a

Universal Alphabet and a Philosophic Language. Dr. Wilkins saw and read this book, and, as Anthony Wood says, 'who from thence taking a hint of a greater matter, carried it on and brought it up to that which you see extant.' The allusion is to the Bishop's celebrated work on a Universal Language. Dalgarno also published another work called 'Didascalocophus: or, The Deaf and Dumb Man's Tutor.' Dr. Seth Ward, Bishop of Salisbury, says of him, 'that he discovered a secret which by the learned men of former ages had been reckoned among the desiderata of learning.' He comprehended his subject, and brought great good sense and practical wisdom to bear upon its elucidation. 'When your scholar,' he says, 'has got over this difficulty of knowing and writing his letters, then initiate the way of the nursery. Let *utile* and *jucundum*, variety and necessity invite and spur him on; specially if he be young or of a *lache* temper. You must not be too grammatical in teaching, till you find his capacity will bear it; and he must not be dealt with as schoolboys, who are often punished for not having learned what is above their capacity. It is enough for him to understand the word or sentence proposed, without parsing every word or syllable; for this is all the use of language that not only children, but even people of age, that are illiterate have.' Dr. Wallis, another of our countrymen, about the same time busied himself with arranging and systematising what others had previously done. His two great objects, as stated in a letter to Mr. Boyle, were 'to teach a person who cannot hear to pronounce the sounds of words and to understand a language, and to know the signification of those words, whether spoken or written, whereby he may both express his own sense and understand the thoughts of others.' Writing, reading on the lips and speech, the manual alphabet, logical induction, the natural signs—acquired from the deaf—were the means he made use of. But he did more than write. He was a practical teacher, and succeeded so well that he was able to exhibit his pupil, Daniel Halley, before the Royal Society in 1662. But Dr. William Holder, Rector of Bletchington, disputed the priority of his claims, and even asserted that he had taught one of Dr. Wallis's pupils. He published a work called 'Elements of Speech, with an Appendix concerning persons Deaf and Dumb,' some years after the appearance of Dr. Wallis's book on the same subject. In 1670 George Sibscola published a work called 'The Deaf and Dumb Man's Discourse.' But he had found the suggestions to his method in the account furnished by F. Valesius of what Ponce had done. The work is of little value.

Holland now takes up the subject. The great war of liberation and the rule of enlightened princes had stirred the minds of the people and made them eager in the pursuit of knowledge. Peter Montanus turned his attention to the instruction of the deaf, and F. M. Van Helmont published a small tract in 1667, entitled, 'Alphabetum Naturæ,' in which he showed how the deaf can be taught to read speech. But in 1700 a work appeared, written by John Conrad Amman, called 'Surdus Loquens' (The Speaking Deaf), destined to effect great things for the deaf. He was a Swiss, born at Schaffhausen in 1669, and educated at Basle, where he took a high degree in 1687. He had studied medicine, but soon turned his attention to the education of the deaf. Esther Collard was his first pupil. He removed to Holland, and while his own book was in the press he fell in with Bonet's, and about the same time received a letter from Dr. Wallis, who informed him that he had practically applied what was made known in 'Surdus Loquens.' Amman replied. The late Mr. C. Baker of Doncaster published a translation of Amman's book, which has this correspondence in the introduction. Amman's work furnished the basis of the method so systematically and patiently developed in Germany. Hence it is called German ; but of all the nations of Europe, as has been seen, the Germans have the least claim to the honour of its invention. 'Other men laboured, and they entered into their labours.' The book is admirable as far as it goes, but after all only a rough outline. But we do not seek to detract from his fame. This brave Swiss lifted high the torch which shone into Germany, and stirred to action minds that were capable of making it a light for the world.

France too is maturing other seeds to bear a rich, but distinctive harvest. As Holland was indebted to Switzerland for Amman, so France was indebted to Spain for the precursor of De l'Epée. Jacobo Rodrigeno Pereira was of a Jewish family, and born at Berlanga, a town of Estramadura. Persecution drove the family first to Portugal and then to France. They had conformed to escape the Inquisition, but still suspected, and not without reason, of being Jews in secret, they sought a home where their antecedents were little known, and at last found a peaceful settlement at Bordeaux, and prosperity in the active pursuit of their business. They were manufacturers of silks and velvets. Part of the family still resided at Braganza, in Spain. The mother of Rodrigeno was a widow with two sons and one daughter. It is said this daughter was deaf and dumb, and that this made her brother Rodrigeno a student of the art of teaching the dumb. After laborious and painful study he began to teach, and succeeded so well that in 1745 he was able to present the results of his labours to the public. Aaron Beaumarin, a young Jew, was his first pupil. He could pronounce some words distinctly, which excited the admiration of some and the ridicule of others. Rodrigeno became celebrated, and his work drew the attention of men of science. A letter which appeared in the 'Mercure de France,' Oct. 25, 1745, written by M. Dupaty, a member of the Academie de la Rochelle, attracted the attention of M. d'Azy d'Etavigny, a gentleman of La Rochelle. He was the father of a deaf child, born so, and whom the most skilful physicians had declared incurable. Pereira undertook his education, and made rapid progress. But he was removed to the care of another, whose incompetency was soon so evident that he was again placed under the care of Pereira, who made still greater progress in his education. But his most distinguished pupil was Saboureaux, son of an officer of the guard, and a ward of the Duc de Chaulnes. He had previously received some education from M. Lucas, so that he could read a little and communicate by the manual alphabet. He had an intense love of knowledge, and though residing where he had no assistance, continued its pursuit in the most adverse circumstances. Recalled to Versailles by the Duc he was placed under the tuition of Pereira, and soon began to distinguish himself by his speaking and command of language. His own relation is the best account we have of his teacher's method. 'In the same manner,' says he, 'in which an infant learns French, so M. Pereira applied himself, at first to give me a knowledge of words in daily use and of the commonest phrases, such as 'Open the window,' 'Close the window,' 'Open the door,' 'Close the door,' &c. Finding me sufficiently acquainted with the dialogues of everyday life, he abandoned the use of gestures in my presence, but at the same time he employed the Spanish manual alphabet—one-handed—which he had enlarged and perfected. It was better in habituating me to the use of language to drop the signs by which he was wont to converse with me. And in order to exercise me still more in the meaning of familiar phrases, he made me take part in doing everything according to the import which the language any one would employ would present to my mind who wished to command me;

and to reply to all questions, easy or difficult, so that the thoughts might become mine. He also obliged me to give a daily report of everything that had occurred, to repeat whatever he had said, to talk, to converse, to reason, to dispute with himself or others about everything of ordinary use, which we might think of; to write letters in my own way to my acquaintances, and to reply to letters I had received, &c. By such means I have become acquainted in a perceptible and habitual manner with the value of nouns, pronouns, conjugations, adverbs, prepositions, conjunctions, &c., of which M. Pereira had successively given me a number of striking examples after the models on which he had obliged me to construct some others in my manner. Finding me sufficiently advanced in six months in an intelligent use of colloquial language, he taught me in the next place to conjugate verbs, then to decline nouns, and lastly to parse some phrases, and then to express grammatically, in one form or another, all that he might say, repeat,' &c. These details may be tedious to those who have never attempted to educate the deaf, but they are of great interest to those who have, and reveal the method which, in a more mature form, will one day displace all others. As Pereira never published his system, but seems to have guarded as secrets the more recondite parts of it, this account is of still greater value. It may seem strange to us that any benevolent man should conceal from the world the knowledge which is essential to the mental life of thousands; but we ought to remember that at that time every inventor was persuaded he had a right to the sole enjoyment and profit that might be derived from the employment of his inventions. Others had done as Pereira, and we fear that even now there are some who have not his excuse that follow his example.

The work of Pereira excited so much attention that the Academy of Sciences took it up and held an examination of his pupil. Their register contains a report of the *séance* of January 27, 1751, where we find amongst other things touching the examination the following: 'This explanation has made it evident that M. Pereira has a remarkable talent for teaching the congenital deaf and dumb to speak and read. That the method he employs is excellent; that the children which have all their senses do not make so great progress in so short a time.' Royalty itself smiled upon Pereira. He was much admired and esteemed, but failed in giving his system that broad basis which would have made it permanent in France, because he confined his efforts to the few, and did not enlist the sympathies and the gifts of the many for the relief of the deaf as a class.[1] The Abbé Deschamps and Father Vanni did something for the deaf in France at this time, but not with the success of Pereira.

Now appeared one, the Abbé De L'Epée, who soon eclipsed all others, perhaps not so much by the greatness of his genius as the expansiveness of his benevolence. He was the first whose great heart entertained the design to educate all the deaf and dumb irrespective of their condition ; the first to enlist the sympathies of all classes in their behalf; and the first to found an institution for the achievement of the work. Improved methods of instruction may be introduced, and much of what he invented and laboriously executed become obsolete, but his fame will abide as long as men are capable of loving and admiring a great soul. The writer of the article in the 'Penny Cyclopædia' says justly of him, 'While the good Abbé, with that frankness which formed a beautiful feature in his character, solicited the examination and the judgment of the learned upon his method, his rivals shrouded their proceedings under a veil of mystery. The Abbé devoted his life and his fortune, except a bare supply for his own wants, to the service of the class he had taken under his protection. Pereira refused to disclose his method except for a large recompense, and Heinicke, in addition to receiving payment from the rich, had four thousand crowns annually allowed him by the Grand Duke of Saxony. Both these persons made the art they professed an interested speculation ; the Abbé De l'Epée only tolerated the rich—he was proud of being the instructor of the indigent.' The first impulse he received to undertake the education of the deaf was from meeting with two young females, sisters, belonging to a family whom he was visiting, both deaf, and trying to communicate with one another by signs. From that day he devoted himself to the work. Bonet's and Amman's books fell into his hands, and he began with teaching speech, but soon abandoned it for signs which he fondly imagined he could develope into a language. It is now said he would not have taken this course had he received the aid and sympathy from other teachers which he required. But he became the champion of his method, and brought to bear in its support and defence all the force of his genius and benevolent enthusiasm. His successors inherited his devotion so that it might be said with safety, if signs could have been exalted into a language sufficient to the moral and intellectual education of the deaf, it would have been achieved. De l'Epée became famous. It was fashionable to patronize him, and he lived to see his projects so far advanced as to feel confident that they would not be allowed to perish. He has earned the lasting love and gratitude of those whom he has most benefitted by his labours.

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[1] M. Ernest La Rochelle is about to publish a memoir of Pereira. To his great kindness I am indebted for some of the sheets containing what I have reported.

Professor Fornari, in his 'Sordomuto che Parla,' or Speaking Deaf, has provided us with the following summary of De l'Epée's system.

1. ‘The education of the deaf and dumb should be transferred to the eye, as that which cannot enter by the door (the ear) can be introduced by the window (the eye).’

2. ‘The visible form of our language is alone suitable to the deaf and dumb; then writing; and to this form ought their acquisition of language to be restricted.

3. ‘Ideas have no more affinity for their symbols in sound than for those in writing.

4. ‘All then lies in translating into writing that arbitrary and conventional link which unites speech with thought.

5. ‘The deaf and dumb can indeed learn to speak, but the results do not by any means correspond with the time and labour it requires, and therefore it has no practical importance, and would not be an equivalent for the loss which the mental education would suffer from the absence of the voluntary extension of mechanical (mimic) exercises.

6. ‘The use of the manual alphabet by the deaf and dumb supplies their aptitude to speak.

7. ‘Every deaf mute who is not imbecile is in possession of the language of gestures, which is to him his mother tongue.

8. ‘To instruct the deaf and dumb in one language, which is a foreign language to him, and generally to instruct him, he has continually to employ his mother tongue (signs) as a medium, as any one who can speak would have were he to learn a foreign language.

9. ‘Whatever may be the intelligence of the deaf and dumb, their language of gestures remains limited and unequal to their requirements; the teacher ought therefore to aim, as a primary thing, at developing and perfecting, materially and formally, this essential means of acquiring knowledge, so that it may suffice as an exclusive means of instruction.

10. ‘ Such an improvement is best pursued in the manner most conformable to the object, after the rules and forms of the language which the deaf and dumb should learn, so that such modes of expressing himself shall differ only from writing by being signs of the hand (the manual alphabet).

11. ‘ There is no impediment to the said culture of signs.

12. ‘ The language of signs is the one form in which the deaf and dumb can think.’

A word or two about these principles. The first is defective, for touch is another sense which can be efficiently enlisted in the education of the deaf. 2. The Abbé was himself compelled to have recourse to something more, for he confesses in the 9th Axiom that the language of gestures remained limited and unequal to the requirements of the deaf. 3. Ideas have truly no absolute affinity for their symbols in sounds, but evidently these are infinitely better as suggestives than a set of symbols, such as signs, which introduce another class of ideas, that again suggest the proper ideas. 4. The link which connects speech with thought is neither arbitrary nor conventional, but as much a law of nature as thought itself, and the attempt to translate it in the way the Abbé devised has proved unequal to the end. 5. The Abbé confesses that the deaf can learn to speak, but it does not appear that he ever gave it a fair trial, or provided the time and opportunities for acquiring the facilities which enable teachers to make it an efficient instrument of mental culture. Results have proved that there is rather a saving than a loss of time in its employment. 6. The manual alphabet is a tedious and imperfect mode of communication. 7. And the so-called language of gestures possessed by the deaf is only a rude attempt to express animal wants and emotions. It takes the place of the mother tongue for a season, but when speech is learned it is felt to be much more consonant with the natural aptitude. 8. The language of the country must be learned through the language of signs, a most objectionable process, which should be avoided, for it compels the acquisition of two languages instead of one, and subjects the one in common use to all the imperfections in construction (muteisms), which we find in a foreigner imperfectly acquainted with our language. 9. The language of gestures has never been completed, and is not likely to be, for the teachers who employ it use as many forms of it as there are dialects of our own language. 10. According to the 10th Axiom gestures are a language behind a language, or in other words, the language of thought is one, and of expression another, involving a mental conversion. 11. A great impediment in the culture of signs is, that none can be devised for abstractions except arbitrary mnemonics. 12. Happily, it has been frequently proved that the deaf can think in words without the intervention of signs.

Heinicke was contemporary with De l'Epée. He was a German, and founded his method on Amman's. Hartman says it was through his influence that the first public school in Germany for the education of the deaf was opened. He commenced his work in Dresden with the education of a deaf and dumb boy in 1754. Afterwards he gathered a great number around him as their teacher at Eppendorf, near Hamburg, 1768–78. But in 1778 he complied with an invitation given him by Frederick Augustus of Saxony to found an institute at Leipsic. There he commenced with nine pupils in April 1778, and laid the foundation of the public education of the deaf and dumb in Germany. He received 4,000 crowns a year from his royal patron. 'Heinicke rested the principal stress of his instruction on the learning of Speech, and held the sign language as unnecessary, and even perilous.'

In a short time he found himself involved in a controversy with De l'Epée on the merits of their respective systems. But in the publicity he had given to his methods the latter had a great advantage over Heinicke, who concealed his, and referred only to results to demonstrate their superiority. Professor Fornari provides us with an outline of Heinicke's system.

'1. Human thought is not so possible either by gestures or by writing as by the spoken word only.

'2. The deaf-mute desires to be taught to speak, and read aloud.

'3. He cannot remember the infinite variety of the complex combinations of written letters to serve his purposes in thinking.

'4. The deaf-mute cannot advance to and acquire abstract ideas by means of gestures and writing, but solely by the use of spoken language.

'5. The method of De l'Epée, which is to teach language to the deaf by gestures and writing, is to be altogether rejected, because it makes them no better than a writing machine.

'6. My method has made extraordinary progress in two or three years, and can make the pupils, awake or dreaming, think in the spoken language.

'7. The true method of instructing the deaf-mute should be based solely on spoken language, and this on the palate or touch which takes the place of the absent ear.

'8. He can employ the manual alphabet, but only to associate ideas.

'9. For signs of ideas and for thinking there is nothing for the deaf and dumb but speaking and writing.'

M. C. G. Reich, Heinicke's son-in-law and successor, gives some account of his principles in a pamphlet published in 1828. These are the chief—'Ideas first, then words.' 'If we wish to educate the deaf-mute, and enable him to understand and communicate with others, we must teach him to think in words. By means of the meagre, defective language of the uneducated deaf-mute, which he forms for himself, his mind may be unfolded to the close observer. Under the care of a skilful teacher, this language may aid in the development of abstract ideas and instruction in general. It can, moreover, never be the means of making the deaf-mute familiar with our mode of thinking in words. . . . We do not think in written, but in spoken words. Written words represent speech to our sense of vision, but when they are not before our eyes, we cannot think in them, because the mind cannot picture them. Therefore written language can never become a form of thought for children deaf from infancy.' He taught speech and lip-reading, that his pupils might communicate orally with others. Reich published another work—probably part his father-in-law's modes of teaching and part his own. In this he says: 'Our next task is to procure a sufficient supply of materials for building; viz., of words that are to be used as signs of the ideas which they represent.' He therefore caused his pupils *to commit to memory long lists of nouns and adjectives.* The memory is to be cultivated while the reason is dormant. M. Reich had few followers. Great differences of opinion existed amongst teachers as to signs and speech, 'but all agreed that language should be arranged after the grammatical system.' But the Rev. W. F. Daniel, who resided near Stuttgart, Würtemberg, dissented. He says, 'The attempt at teaching language to deaf-mutes after the grammatical system must prove a failure. The instruction in language for deaf-mutes must assume a more practical form. They must learn language by means of complete sentences and practical examples, in the same manner in which hearing children acquire it, without first committing to memory long lists of single words and their declensions. It is more unnatural to compel deaf-mutes to decline nouns and pronouns, and conjugate verbs, before giving them complete sentences in which declension and conjugation are applied, than to cause the hearing child, two or three years old, to decline and conjugate words in order to enable it to apply the forms of speech.'

What then is the radical difference between these two leaders? Did Heinicke discard gestures altogether? No, he retained them, but only till he could displace them by a better instrument. De l'Epée strove to make a language of them, and bind the mind to their perpetual use. Heinicke strove as quickly as possible to dispense with them as utterly inadequate for reason. And yet Heinicke was inconsistent, for he laid his foundations on the very thing he condemned, and originated a habit which was certain to mould all that came under its influence. Nor was De l'Epée himself quite satisfied with his system, for in a letter to Sicard, November 25, 1785, he says he 'was informed from other parts that his pupils could be made but indifferent translators of our language into that of gestures.' Such a confession reveals the great man who is higher than his system, and neither deceives himself, nor wishes to deceive others, as to its defects. But much of this might have been obviated by making gestures follow the construction of our language. De l'Epée had a method of explaining compound terms which seems very ingenious, but hardly satisfies. They are resolved into their elements, and it is assumed they are understood if these elements are. An instance quoted in the article Deaf and Dumb, 'Penny Cyclopædia,' may serve to illustrate: 'A stranger visits the Institution at Paris, and the Abbé endeavours to prove his ability to render abstract terms into the language of signs by selecting out of a number of such, the word *unintelligibility.* This was explained to the pupil and at once written by him. The process was then interpreted by the Abbé. Five of these signs were fully sufficient to designate the word; you saw with what celerity they were given. The first signifies not an external, the second the reading of the mind: that is, of exhibiting the disposition of apprehending the thing proper to it, the third announces the possibility of this disposition; whence arises the appropriate noun-adjective *intelligible,* which being a concrete quality is converted into the abstract by a fourth sign, forming *intelligibility,* and a fifth sign being added for negation, *unintelligibility* is produced.' The elaborate nature of this process reveals the imperfections of the method. Does it follow that a clear conception of a complex term is formed by uniting its elements? Had the meaning of the term been first known, then this analytic resolution into its elements would, for the scholar, be a capital mental exercise, but to arrive at its precise meaning through these elements, when one or more are arbitrary signs for abstractions, seems more than he is likely to achieve. But what sign could be invented as a symbol to represent the word itself? The good Abbé felt the insufficiency of his instrument, and when he could not perfect it, enlisted his successor, Sicard, to complete a Dictionary of Signs for the whole language. Heinicke avoided these rocks, and strove to make language its own interpreter. But his method was very slowly adopted in Germany. He did not himself rigidly carry it out. A compromise was made. Neither in Berlin nor Leipsic was it developed. Both his son and son-in-law abandoned it for the French. Dr. Augustus Jäger, of Würtemberg, who died in 1864, gave publicity to Heinicke's method in his work, 'A Guide to the Teaching of Deaf and Dumb Children,' published in 1832. His leading propositions are—

1. ‘The language of gestures (natural) is that to which the teacher should confine all the instruction of the deaf and dumb. From this he starts, but with the purpose of being able gradually to dispense with it.

2. ‘As far as the language of natural gestures is indispensable, so far are artificial signs useless and even pernicious.

3. ‘Speech and writing are necessary to the deaf and dumb, although voice can never be sound for them.

4. ‘The manual alphabet should be discarded.

5. ‘When the pupil has learned to speak and read from the lips, he ought to be spoken to within and without the school, and when necessary, by writing, excluding all gestures.’

Or, according to his own words in his ‘Guide to the Instruction of Deaf-Mute Children,’ ‘Either no articulation, or no finger alphabet and artificial signs. We cannot approve of the combined method, for of what use are the finger alphabet and artificial gestures? . . . All that can be accomplished by means of them can also be obtained by articulation and lip-reading alone. Indeed, the use of the finger alphabet besides articulation is not only superfluous, but absolutely injurious, because its use deprives the pupil of the necessary practice in speaking and reading from the lips. Time and labour are wasted by this system, and eventually the education of the pupil is greatly impaired. We therefore have the choice either to use dactylology and methodical signs without articulation, or to apply the latter without the former. . . . We limit ourselves to the use of natural signs, and spoken as well as written language. We must start with natural signs, but not make them the basis of instruction by merely translating them into our language. *Words must be connected directly with the objects which they signify or with pictorial representations.*’

Jäger had not emancipated himself from the use of gestures. It is very difficult to keep the hands behind the back and rely solely on speech. 'The institution of Gemund, where Jäger was director, and Wagner after him,—another bold advocate of the method which is with reason called German—was for many years the model institution, not in name and pretension, but in fact and merit, for it formed the teachers not of Germany only, but of every part of Europe.' But the Germans were not contented. Logic was against the system of Jäger, and with the patience and persistency for which they are noted, they strove to complete the speech method. A new school arose with Hill as its leader, who has done more to popularise its methods than any other. His works have become text-books both in and out of Germany. Accurate speech and lip-reading have a primary place in his method. But it is not this alone which distinguishes his system. He says: 'If articulation were, as many believed, the most essential part of the German method, then it might more appropriately be called Spanish, English, Dutch, or French, because it is well known that Bonet, Wallis, and Amman taught their pupils to articulate, and left us valuable works on the subject; further, that Pereira and Deschamps also gave instruction in this special faculty.' He would abolish signs, for the same reason as that assigned by Jäger. But he permits their use. 'At the lowest stage of instruction—they are the only means of inter-communication between teacher and pupil. As the scholar advances in language, they are gradually set aside and superseded by spoken words; but even at the higher and highest stages of his education they are tolerated and applied, though ever more and more restricted, until at last they are reduced to mere facial expressions and gesticulations.'

'Since we learn to understand a foreign language long before we are able to apply it, it is judicious that the teacher should express himself oftener in his vernacular, but permit his pupils a more extensive use of the language of signs.' ('American Annals.')

For instruction in language, Hill adopted the following principles:

1. '*Deaf-mutes* have to learn language in the same manner in which hearing children acquire it.' He employs what he calls the mother's system—which is, to name and talk of, to a child, everything that strikes or attracts, carrying it from object to object, and when it is no longer possible to bring him to other objects, he would introduce pictures such as he has published in twenty-four sheets. These are striking, highly coloured, and generally descriptive of action. Lessons, at first mere skeletons, are formed on them, and afterwards, as the command of words grows, they are filled up. Grammatical order is not observed, and the forms of speech not meant to be fixed. He also published a reader in 1870, in which language is more fully developed. Another is added for the Senior Classes. These are all good, according to his method.

2. 'As with hearing persons, so with deaf-mutes, articulate speech must form "the basis of language"; writing, however, has to be treated as a secondary mode of expressing thought, wholly dependent on the former.'

Pupils taught by the combined method never learned to think in their own language. The language of the country was known by sight only. They could neither use nor understand oral conversation. Hill's endeavour was to make the speech of his pupils 'a living organ of their reasoning faculties, a powerful means of instruction, a sure and permanent means of communicating with other people.' He also says, 'This can be accomplished only on two conditions:

'First, by attaching words, as far as possible, not to their respective signs, but directly to the things signified: thus suppressing, evading, and avoiding the formation and use of signs; second, by limiting the employment of signs in the measure in which the vernacular of his country becomes intelligible to the deaf-mute.' On the relation of spoken to written words, he says elsewhere: 'The instruction by means of oral language I consider not only better adapted to our ends, but also more beneficial for the instruction itself and for the after life of the deaf-mute, than the predominant use of written language, because it is more animated, expressive, and effective. Spoken words, being read from the significant face of the speaker, which acts the part of an interpreter, make a more profound and lasting impression upon the mind of the deaf-mute than the dead, cold characters of the alphabet. For no consideration would I give up this animated face-to-face intercourse with my pupils by means of spoken language—which, combined with gesticulations, enables me to penetrate their souls, and during which they read from my face with intense interest—and place in their hands a pencil and a piece of paper. Let speaking have the priority.'

3. 'Almost from the beginning must we use speech as a means of instruction and inter-communication with our scholars.'

He lays down this rule also in regard to language lessons and the other branches of education. '*There is language in everything. Each branch has its peculiar language. Each branch has to teach its own language.*' This is admirable. Would that we had known it many years ago!

The principles of this new school may be summarised as—

1. Language is the sole instrument in teaching.
2. Every object should teach its own proper name, or language.
3. Whatever is the language of life for the deaf and dumb, that

should be the school-language, the language of instruction, or the language of social intercourse.

4. All that does not turn to the real profit of the individual is excluded.

This new school divides its studies into two parts; the one elementary, in which language is practically taught, and suitable preparation made for the second, in which language is revised, and the study of history, geography, &c., which respond to the requirements of civil life, prosecuted. Practically, the Germans of the new school exclude the use of signs as much as possible, and make speech the foundation of language, first by oral instruction, and then by associating words with their objects, or pictures of them drawn from nature. Arithmetic is taught from the first, and grammatical instruction begins when enough language has been acquired to cultivate the reflective powers and give a firmer hold of construction.

'But in Germany,' says Hill, 'all that glitters is not gold. In certain places there are public spectacles got up for effect, the morality of whose promoters is of the india-rubber sort, which syllogises, "*Mundus vult decepi, ergo decipiatur.*" The admiring public expresses to the director its appropriate satisfaction, the journalist trumpets his distinguished services, and the excellent state of the Institution. Only the initiated stand there as the augurs before the priests, laughing under their moustaches, or muttering the chorus of Béranger's song, "*Encore du charlatanisme*"!' (p. 248). It is full time that methods of teaching had ceased to be occult, and the public enabled to form a correct estimate of what is due from professed teachers.

Slowly but certainly has Hill's method been making converts. Even those who at one time were the warmest advocates of the sign method have surrendered. Switzerland and Italy are now with Germany, and

France, the country of De l'Epée, has lately pushed on its introduction into their schools. Some of the most enlightened French masters are now by speech and pen persuading their countrymen of its superiority. Its general adoption is a matter of time.

But what has England been doing since the days of Wallace and Dalgarno ? Borrowing slavishly from her neighbours, and sedulously concealing what ought to have been made public ? There is too much reason for replying in the affirmative. Thomas Braidwood about 1760 kept an academy at Edinburgh in which he taught the deaf to speak. Dr. Wallis was his guide. Speech was therefore his chief, but not his only instrument of instruction. Mr. Pennant, in his tour in Scotland, visited Mr. Braidwood's school, and remarks thus of his method. Of the deaf he says : ‘ They see our words, and our uttered thoughts become to them visible ; our ideas, expressed in speech, strike their ears in vain ; their eyes receive them, as they part from our lips ; they conceive by intuition and speak by imitation. Mr. Braidwood first teaches them the letters and their powers, and the ideas of words written, beginning with the most simple. The art of speaking is taken from the motion of his lips ; his words were uttered slowly and distinctly. Their answers are slow and somewhat harsh.'

After a time he removed to Hackney, where he attained to considerable celebrity by his success. Dr. Watson, who was the first director of the school in the Old Kent Road, was his pupil and heir, as a teacher. Unlike his master, who concealed his art from the public, he wrote and published a work called ‘ The Instruction of the Deaf and Dumb.' But it does not appear that he fully developed and applied his system, for under his son and successor the sign system prevailed. In 1814 or 15, a young Frenchman named Gallaudet came to England to obtain instruction in the method employed at the Old Kent Road, but found that it could be supplied only on the condition of remaining three years in the Institution. This did not suit his purpose. He then visited Edinburgh for the same object, but failing there also, he was about to return to France, when he heard that the Abbé Sicard was in London with two of his celebrated pupils, Massieu and Le Clerc, who were delighting all classes by wonderful exhibitions of their attainments.

Gallaudet soon found means to communicate with Sicard, who received him most favourably, and offered him every assistance for the attainment of his object. He accompanied Sicard to France, and after a time spent in study, set sail for America in company with Le Clerc. There they founded the first of those Institutions which are now unsurpassed in number, in their splendid accommodations, and in their staff of enlightened and devoted teachers, who are ever striving in the most public manner to compare and test the different systems, in order that they may discover and apply the best. The oral method is progressing there also. Miss Rogers, of Northampton in Massachusetts, like Miss Hull in London, has fully demonstrated its efficiency, and, though the Gallaudets and the Peets are not yet convinced, they are carefully weighing the evidence lately submitted to them at Milan.

The indirect influence of De l'Epée and Sicard in the promotion of the education of the deaf and dumb was, if possible, greater than the direct. Their noble devotion and self-sacrifice, combined with the new and astonishing results of their method, attracted the attention of the enlightened, and stirred the hearts of the benevolent. Institutions sprang up all over Europe; subscriptions and donations, sometimes princely, poured in, and enthusiastic teachers were found to study and apply the method. England was not behind in the good work, and Institutions at Birmingham, Doncaster, Manchester, Glasgow, Dublin, and other large centres of population, were founded, which would be an honour to any country, and all supported by voluntary contributions. The State did nothing for them, though its grants were considerable to national schools. In these institutions thousands have received five or six years' instruction, when they ought to have been allowed twice the time to repay them for the years they had lost before they learned a word. And it ought to be said to the credit of the teachers and the general management of these Institutions, that the great majority of those who were trained in them have turned out well, and taken their places as respectable and industrious citizens. The friends of the German method have no wish to detract, in the smallest, from the credit and efficiency of these Institutions and their masters. Convinced of the superiority of their own, they only seek to emulate their devotion. Nor are they much astonished at the doubt and delay with which the German method is treated. Its introduction means revolution and radical change, for which they are unprepared. Their antecedents, their traditions, their organisation and appliances are all those of its rival. The teachers have to be taught and the conditions created, to enable them to form a just opinion of its merits. Perhaps, too, the friends of the German method have forgotten that the *onus* lies on them, in attempting to displace the French by another, to prove its superiority by results, rather than by arguments founded on what had been achieved elsewhere, and therefore they ought to exercise patience and give the public an opportunity of judging for themselves. We are a practical people, and wait to be convinced by facts rather than by arguments. One thing is certain, that the existing Institutions are inadequate. They exclude many more than they receive, and the time is near when Parliament will step in and compel provision to be made for the deaf and the blind. Then a favourable opportunity will be provided for introducing the German method in the conditions which are necessary to its success.

However, the establishment of a training college at Ealing for Teachers by this method is a good beginning, and we may yet take our place amongst the most advanced nations in this divine work, if we give it the attention it deserves. It is full time that all other interests should yield to the silent but eloquent appeals of the deaf and dumb for a share in our national education.

In September last, an International Congress of Teachers of the Deaf was held at Milan. Over 200 attended; Italy and France were well represented, but other countries not so adequately. The Abbé Giulio Tarra presided. The discussions were unfettered, and everyone who wished to speak received an attentive hearing. After two days' debate on the subject—'State the advantages of the Articulation method over that of signs, or the contrary, regarding it chiefly from an educational point of view, without neglecting its relation to social life,'—the following resolution was passed almost unanimously :—

'The Congress, considering the incontestable superiority of speech over signs in restoring the deaf and dumb to society, and in giving them a more perfect knowledge of language,—

'Declares—That the Oral Method should be preferred to that of signs for the education and instruction of the deaf and dumb.' There were only four dissentients.

The next three subjects were discussed together. They are as follows :—

'2. Explain in what the Pure Oral Method consists, and point out the difference which exists between this method and that called Mixed or Combined.

'3. Define exactly the limits which separate the signs called "Methodical" and those called "Natural."

'4. What are the most natural and efficient means by which the deaf and dumb can most readily acquire a knowledge of the common language?' After passing the first resolution, the discussion of these subjects in detail was unnecessary, and therefore the Congress confined itself to the second, on which the following resolution was passed by a majority of 150 to 16:—

'The Congress, considering that the simultaneous employment of speech and of signs has the disadvantage of injuring speech and lip-reading as well as precision of ideas,—

'Declares—That the Pure Oral method ought to be preferred.'

In addition to these, the following resolutions were passed by the Congress:—

'The Congress, considering that the education of the deaf by the Oral method should as much as possible resemble the education of those who hear and speak,—

'Declares—1. That the most natural and effective means by which the deaf and dumb can acquire a knowledge of the language of their country, is the Intuitive method, viz., that which consists in designating at first by speech, and then by writing, the objects and the facts placed before their eyes.

'2. That in the first, or *maternal* period, they ought to be led to the observation of grammatical forms, by means of examples and exercises practically arranged, and that in the second period they should be aided in deducing the grammatical rules from these examples, expressed with the utmost clearness and simplicity.

'3. That books written in the words and forms of language known to them can be put into their hands at any time.'

Other resolutions were passed, but not so important as these. We conclude with Dr. Zucchi's suggestive words: 'Speech is the light of the soul, and the soul on earth is the light of the divine idea.'

METHOD

OF

TEACHING THE DEAF AND DUMB.

THE RIVAL SYSTEMS.

INTRODUCTORY.

1. Of all the children of the great family to which we belong, the deaf and dumb are most in need of education. Their privation robs them of the ample opportunities enjoyed by all others of acquiring speech and language. Consequently, they are consigned to mental barrenness during the season of greatest fertility. Those instincts and tendencies to thought and speech which belong to the race are arrested at their birth, and gradually enfeebled through loss of exercise, till the educator steps in and provides an imperfect substitute for the lost sense. For it is as true of our mental as it is of our physical forces, that not to use them is to paralyse them. Much time and labour have to be expended on the deaf, before they can occupy the vantage ground enjoyed by a hearing child. This is forgotten in their education, and they are put off with five or six years, when they ought to have ten. Even when aided by the most skilful teachers, they receive but little of that constant flow of words which through open ears puts others in possession of the common lore. Their souls are imprisoned : Liberty lives and rejoices at their side, but they are bound. The nation has roused itself to the education of all its children except the class which is

most needy; for without instruction the deaf and dumb are the most useless and helpless. When governments take account of the visitations of Providence, and make a suitable provision for the sufferers, they cannot consistently overlook those whom the same Providence has made most destitute. The patient must not be allowed to perish while the physicians are debating about the best treatment. Some education would be better than none, and therefore, in the name of those who cannot plead for themselves, except by their privations, we entreat and implore that the deaf and dumb shall have their share in the national education.

2. (*a*) Deafness necessitates dumbness, till art takes the place of the absent sense. Not to hear is to know nothing of the sounds which constitute speech, and are learned by imitation. There is no doubt that deaf children have all the congenital instincts and impulses to speak like others, but the forces are wanting which would stimulate them into productive activity.

(*b*) With few exceptions, their organs of speech are perfect, but feeble in muscular force, because inactive. Only two instances of dumbness with hearing have come to our knowledge, and in both the organs of speech are paralyzed.

(*c*) Their other senses, especially sight, are more active from the larger demands made upon them to supply the place of the lost one, but deficient of the culture attendant on growing intelligence.

(*d*) Intellectually they are not inferior to other children. Could access be conveniently found to their minds, they are capable of the highest culture.

(*e*) In imitativeness they are usually superior, because they are ever striving to communicate with others by gestures, which they learn by observing their actions, and which must be suggestive by their close resemblance, to be of any use.

(*f*) Possibly, too, in their case, there may be something of that law of compensation by which nature strives to provide otherwise for her own failures, as the broken bone is made stronger than the whole.

3. There cannot, therefore, be any question about their claim to education. It has been fully recognised, though still unsatisfied; and the problem which presses for immediate solution regards method rather than right. Two systems are in the field: the sign, or French, and the speech, or German; and the friends of both are active in support of their superior claims. The former has much to recommend it, because it seems but the consistent development of what nature has provided to fill the place of the lost sense. Much has been said on this point; but always in forgetfulness of the fact that nature had first provided the organs of speech, and gestures were resorted to only because the skill was absent which might have adjusted them to articulated sounds.

4. Signs are mimic gestures, either wholly or partly descriptive of the objects and acts they are intended to suggest: or otherwise mimic, airy outlines or phases of the objects of sense employed as substitutes for their name-sounds. De l'Epée says, 'They are imitation copies in the air of the thoughts.' We all use gestures, but not signs, for they form no constant part of our language. It is therefore evident that a sign is something more than a gesture—though in element such—and has become a fixed symbol of thought, and fills the place of the word in all its uses. Just as a hieroglyph was a picture of the object from whose name it was taken as a symbol of sound, so signs are airy pictures of the objects from which they are taken as symbols of thought. Conventional signs are these symbols formed into a language as far as they will permit, and *systematic signs* are attempts to supply what is wanting by arbitrary inventions which do not bear any resemblance to the ideas which they are used to suggest.

5. A vocabulary of signs for all the objects prehensible by the senses might be easily framed; but they form only a part, and that the less essential, to the operations of reason. There are no gestures for

the mind itself, its powers, its abstractions, and its processes of connected thought. The attempt made by De l'Epée to invent such, though laudable, was an inevitable failure. Whatever language may have been in its origin, in its highest forms it has become purely mental. The mnemonics used to recall the ideas with which they have been associated are therefore not signs strictly speaking, and they tend to materialise all thought.

'The sign language,' says Kruse of Schleswig, 'even though it rises to the level of the signs of word language, cannot get rid of or renounce its *plastic* without destroying itself; consequently, it does not admit of abstract thought, and so fulfils the aim of language only in a limited degree.'

6. Again, signs are destitute of the variety and many-sidedness of a spoken language, which furnishes expression for every shade of meaning, and lends itself to the orator, the poet, and the philosopher with equal fulness and sufficiency; but, from their very nature, signs are fixed, rigid, and limited in number and variety, and stand in a still lower relation to our language than the language of a barbarous tribe would do to the same language developed and enriched with all the spoils of learning when they became a highly civilised people.

7. Another defect of signs lies in the order of their construction. The uneducated dumb invert the order determined by the genius of our language. Putting that which most impresses them first, and all that depends upon it, in the order of their relative importance, a complete inversion takes place, so that, instead of saying *a good old man*, the order of signs is *man good old one*; or *John writes*, it would be *writes John*. In fact, a similar mental process takes place to that in translating a composition from our own language into another in which the order of the words is the converse of ours. This must breed great confusion in minds as yet incapable of abstract thought, and add immensely to the labour of learning and teaching. It is called natural, and thought by some to be essential to the language of signs; but

others cannot see this, and have abandoned it for the common order, and, they say, to the great relief of the learner. Every language has its own peculiar order of construction, and none has an exclusive claim to being natural, because nature rather than art has been active in the genesis of all. A philosophic universal language has been invented, but never adopted. No doubt, poets and philosophers have done something for their special purposes to increase appliances, but little or nothing which modifies the radical structure. Prior to both, mental and moral instincts and tendencies, influenced by laws of thought and feeling which as yet have not been thoroughly investigated, presided over the birth of every language. Our own is an apt illustration. Compounded chiefly of Anglo-Saxon and Norman-French, both have had to yield, in some respects, to a force which welded them into one. This was the work of nature, and therefore ought not to give place to any other construction in the education of English children. Closest association in memory and rapid arrangement of all the parts of a sentence, so that it can be comprehended at a glance, are essential to its use as an integral part of the instrument of thought. Translated signs are not likely to supply these conditions.

8. Again, those who are taught by signs continue to think in them. They are fundamental to all after-thinking, no matter how the symbols may be acquired. *Couches* of thought, they determine its forms. It is possible to teach the deaf the elements of knowledge by written or printed symbols only, but those who have used signs are not likely to abandon them for such a cold, hard substitute. 'What teacher of the deaf,' asks Kruse—himself deaf and dumb, but taught to speak,—'would undertake to prove *à posteriori* that his pupil, from the moment when he learns to express his thoughts in spoken words, also thinks in words apart from gestures? Such a wonderful being I have not yet seen; such a prodigy I should like to see.' But, as has been already said, signs are airy pictures in outline which primarily occupy the mind, and become perceptions before they suggest the objects of which

they are symbols. Their employment therefore involves a complex mental action wholly diverse from that in which sound is the sole agent. In the latter no image or idea is first formed of the sound, which again, from association, suggests the object, but the object itself without the conscious intervention of anything more. The agent is invisible, like the electric current, whose presence is only known by its effects on the indicator. Certain words are repeated. We hear them, and at once the corresponding ideas array themselves before our mental vision. But reduce the same words to signs and repeat them to a deaf man, taught to understand them, and they become his first set of mental images before they suggest the objects themselves, and then they have to be transposed out of the sign into the speech order, before he can communicate them to another ignorant of signs. These are not useless metaphysical distinctions, but mental verities which have a vast influence on the education of the deaf. If a system is defective at its foundations, highest genius will fail in making it efficient. A long trial at both methods has convinced me that signs make demands on the mental powers of most deaf pupils to which they are unequal. The attempt to make a crude incomplete language the vehicle of interpreting a polished and perfect one cannot but fail.

But an objection has been made to speech as not being a real substitute for hearing, because it does not provide the mind with sense symbols, as sound does. To this the valid reply can be made, that while the symbols differ in form, they fill the same place and do the same office. The action of all the senses is intuitive, or, in other words, they seem to bring the mind into direct connection with external objects. Such is our consciousness. A horse is passing: we see him, and believe we see him, and not an image reflected on the optic nerve. We therefore call our perceptions direct, immediate, or intuitional. With the metaphysical theories involved in this we have nothing to do; but only with what we believe, and that is, that we are in contact mentally with the objective through our senses. Now, touch is one of these senses, and reports to the mind as sight or hearing does. But the deaf and dumb can know words as symbols of thought by touch, and therefore they are as much intuitive to them as if they heard them. This is the report of an educated deaf gentleman who is capable of giving a good account of his sensations, and it accords with the teaching of science. Therefore speech does not burden the mind with a set of intermediate images, as signs do.

9. Signs, too, are of no value for social intercourse. Only the deaf and their teachers understand them. They are a dead language, out of school, for others. Yet all that is said in conversation has to be reduced to them to be understood. Just as a foreigner who has long lived amongst us, but never mastered our language sufficiently to think in it, would have to translate all he heard into his mother tongue, to understand its meaning, so does the use of signs relate the minds of the deaf to the language which ought to be their mother tongue. They are never at home. Signs are therefore a most imperfect artificial and cumbrous substitute for words, and more likely to arrest mental development beyond a certain point than to promote it. The manual alphabet, generally associated with signs, has no closer relation to them than writing has to speech. In fact, it is nothing more than placing the fingers so that something like each letter is formed, or if not, associated with it. It might be called writing with the fingers, and, like all writing, suggests the words or signs of which they are the symbols. But compared with speech it is tedious and wearisome, and few are familiar with it, so that those educated by signs have most frequently to resort to writing in communicating with strangers.

10. The alternative method is that in which speech only is employed. This has been called German, not because first invented there, but more generally employed and developed in Germany. That the deaf can be taught to speak where there is no malformation of the organs or mental incapacity, is indubitable. They are dumb only because they are deaf. The imitativeness which would have been

called into action by hearing is dormant. But the eye can be enlisted in the place of the ear, and, under the direction of a skilful teacher, fulfil its task so well as to put the deaf in possession of this most perfect of instruments—their own voice. There is nothing more in the dumb learning to speak than the imitativeness which puts a hearing child in possession of speech, only it is exercised through seeing. Nor is there any mystery in it, as we shall see. From first to last it is the application of the simplest laws of nature. Perhaps it most nearly resembles learning to play on a musical instrument, as a flute. The fingers have to be adjusted and their movements regulated according to the succession of the notes, the breath controlled and the sounds modulated. Time and much practice are required for the full mastery of the instrument, but the labour is justified by the results. So the organs of speech have to be adjusted and moved according to the sounds, the breath controlled and the voice modulated in the enunciation of articulate words pregnant with the ideas which they symbolise. Time, much practice, and great patience are also required, but when it is not a mere accomplishment to grace and cheer life, but almost essential to mental life and culture, shall the labour be thought too great compared with the result? I am bold to say that were the time and pains often uselessly spent in trying to teach music to those whom nature has not formed to learn, devoted to the oral instruction of the dumb, nineteenth-twentieths of them might be taught to speak distinctly. It will yet be done. They are as nobly endowed as ourselves, and ought to be put in possession of our advantages as speedily as possible. The benevolence and patriotism which assures an elementary education to all other children cannot be arrested when these who are most destitute claim their share. What is done in this respect by Germans, Italians, and Frenchmen, can surely be done by Englishmen. Speech was selected by the Creator as the instrument of thought, and therefore He constructed the vocal organs for its production. The sounds also of which it is composed are incomparable as suggestives, and we are therefore on the great lines on which He has wrought when we employ them for the same end.

11. (*a*) Speech is superior to signs, because it puts the deaf in the same relation to language as that enjoyed by ourselves. The words enunciated by them stand in the same organic association with thought, and serve the same uses in memory as if they were heard. Taught to call things and acts by their proper names, and knowing that they do so, they do not feel the need of signs to enable them to think clearly.

(*b*) Speech is superior to signs, because it supplies a perfect instrument of thought. Articulated words are not loaded with the indefiniteness and materialism of signs. Their meaning is fixed, definite, and precise, so that every phase of thought can be expressed by them. And then they are sufficiently numerous. They embrace our literature. Our greatest thinkers, orators, and poets have employed them and modified them, till our language is unsurpassed. Better to put the deaf in possession of it than of signs which are not and never can be made a language. The Chinese were compelled to reduce their rude hieroglyphs to words before they served their purposes in literature. Signs are no better than such.

(*c*) Speech is much superior to signs in education, because it enables the teacher to communicate directly with his pupils and to carry on his work in the language they most need to learn, as if they could hear. No inversion, no resort to a manual alphabet is found necessary. Their minds meet, their thoughts are produced and communicated in the same manner, so that there can be a moral certainty that they are mentally in possession of the same ideas ; but in the use of signs this is hardly possible, because they are too few, arbitrary and imperfect. As an introduction to higher studies, speech has proved itself superior. The deaf educated by it can advance from grade to grade without having to encounter the difficulties attendant on an imperfect instrument of thought, and from understanding the grammar of their own language they can acquire ancient and modern languages.

(*d*) Speech is superior in the intercourse of life. Able to express themselves and to read what is said to them by others, the deaf can enjoy the pleasures of society, which is hardly possible to those who are dependent on writing and the manual alphabet.

(*e*) Speech is superior to signs, even should the ability to read the utterances of others not be equal to every demand. If occasional recourse was necessary to writing a difficult word, the time and labour saved otherwise would give it the advantage.

(*f*) Speech is superior to signs, because it is a direct introduction to the literature of the country. The pleasure of reading and writing is enjoyed, and leads to that fuller acquaintance with knowledge which develops the mind while it further enriches and refines the instrument itself.

While thus speaking freely in our criticisms on the sign method and its inferiority to the speech, there is no disposition to ignore its merits or underrate its achievements. Great things have been done for the deaf by its intelligent use, and though not equal to all that it receives credit for, it has prepared thousands for a useful life. Its teachers are amongst the most laborious and self-denying, and it is not their fault if their instrument is not the best. All of us are more or less under the influence of established and accepted systems, and their defects are often overlooked or unperceived in the enthusiasm that their excellences create. There is something in signs which is most attractive to a young man. They are so like life, and so german to the dramatic in our nature, that they delight while they serve a higher use. Their very incompleteness and indefiniteness opens a wide field for enterprise in devising new and more appropriate gestures, and reducing mental to material forms and relations. But the experienced teacher soon finds that there are limits to his discoveries, and if he is really to educate his pupils, he will have to abandon signs and adopt an inductive method by which many like instances are adduced to illustrate the meaning of a term. And then the sign he employs for it is purely arbitrary. It therefore follows that the more abstract and purely mental the education is, the less it has really to do with signs. Written or printed words are its symbols, and signs get the credit of what they have failed in doing. We therefore think it is better to let speech take the place of both, and provide the mind with intuitive symbols which are organically related to hearing.

These are not theories or bold assertions, but verified results in more than twenty years' practical experience.

12. But a compromise has been attempted. The two methods are to be united, and pass by the name of the mixed method. Both are therefore failures, and their union is to ensure success. The assumption is incorrect. Education by speech is not a failure. Eminent success has already crowned its right employment. Some who do not understand it have attempted its introduction where signs were already predominant; and they have failed. It could hardly be otherwise. The conditions made success impossible. Where signs are the basis of education, they will continue to be the instrument of thought. No after attempts to substitute words for them, as I have verified, have been successful. If speech is the basis, the same law prevails. It becomes through habit the instrument of thought. Both cannot be united. No one is able to think in two languages at the same time. Let it be attempted, and the confusion of thought it will produce is nothing compared with that in the mind of a poor deaf child with languages so diverse as signs and speech. No, he will ever translate the less known into the more familiar, and it will have all the imperfections of such a translation. The language of signs condemns the deaf to this process. In order to speak and write his mother tongue, he has to translate his sign ideas into the language of speech. His mental labour is therefore double what it would be had he only one instrument of thought. Teach him speech only, and he will be in possession of it. The exposition of the Abbé Giulio Tarra of Milan, in his 'Cenni storici e compendiosa esposizione del metodo seguito per

l'instruzione dei Sordo-muti Poveri, di Milano,' is confirmatory of these statements. He says (p. 9): " I. That the nature of signs is lost by conjoining them with the order and nature of spoken and written language ; II. that it doubles the labour of instruction ; and III. that the result remains complicated in the mind of the learner, where the two forms continue, owing to thinking in gestures and writing and speaking in the national language, after a laborious translation from the first form of the thought. I say laborious, because just as much as gestures strive to hold on to spoken language, so far will the nature of both means remain diverse : the one representative, the other explanatory ; the one imaginary, the other mental ; the one according to the order of the impressions and of the facts, the other according to the order of the ideas and of the grammatical linguistic signs from which the translation, or better said, the reduction of the sign construction, cannot but result in a form much more complicated, entangled, refracted, slow, and difficult than any other. But as the mind is one alone, and its ideal form remains one, gestures remain the absolute queen of the mind of the speaking deaf and dumb, and the death of words as symbols of ideas follows from the empire of gestures.

' Observation of the deaf and dumb instructed by such means, or with signs as the basis of the national language, either written or spoken, only confirmed us in our anticipations. They ended by abandoning the second form, in which they succeeded with great difficulty to express themselves, by attaching themselves to the first,—to signs rendered rich and complete by the school, as to what was easier, fitter, less reflective and more rapid, more expressive, more felt to be conformable to their imaginative nature and their fantastic manner of conceiving. Nor was this the only loss they sustained. There was a greater. Their minds, invaded wholly by fantastic forms and ruled by increasing material representations of ideas, real or figurative, and always sensuous, with difficulty withdrew themselves from the ground of the material to elevate themselves into the sphere of the abstract, the reflective, and the rational; and from their primitive manner of perceiving and imagining things, and hence of thinking and judging, as well as expressing them, the deaf and dumb too frequently turned out extreme, eccentric, passionate, obstinate, unsocial, with grave prejudice to the result of their education. Doing what I say, signs too easily excited their minds, called their feelings into exercise, inflamed their passions, and led to excesses which reason could rarely overtake. When then, at the end of the term of education, the pupils so instructed were remitted from the school, where they were understood by gestures, into the lap of a family or a society which was ignorant of systematic signs and knew little of those called natural, they found themselves in a manner mocked and miserable,—shall I say, betrayed?—and thrown into a new and more sorrowful isolation, into a condition more humbling than that in which they had been, ignorant of everything, ignorant also of being unhappy, they verified the sad prediction of the gospel, "The last state of that man is worse than the first."'

THE TEACHER.

13. Satisfied of the superiority of speech to signs, you are about to attempt the education of your child by it alone. Permit a few words of counsel from an old teacher. The task you are undertaking is extraordinary, and will make immense demands on your mental and moral resources. Success is more dependent on yourself than your pupil. Set about it coldly and mechanically, or with a small stock of patience, and failure is certain. Intense sympathy with the sufferer, and an invincible enthusiasm must draw you into closest contact with his inner being, so that every look and gesture may stir the imprisoned soul and warm it up to effort. Your greatest difficulties await you on the threshold. Patiently overcome them, thinking nothing about harsh sounds and other disagreeables, and the joy of success will be a new and potent stimulus. Some possess great moral power over

others, for which it is difficult to account. Shall we call it intenser life produced by the Spirit of Christ, such as Keble well describes :—

> There are in this loud stunning tide
>   Of human care and crime,
> With whom the melodies abide
>   Of th' everlasting chime.
> Who carry music in their heart,
> Through dusky lane and wrangling mart,
> Plying their daily task with busier feet,
> Because their secret souls a holy strain repeat.

Possess this, and you have the best pre-requisite for a successful teacher of the deaf. Be ever also under a deep sense of the dignity and necessity of your office. The being before you is immured in the merest animalism. You are to open his prison doors and bring him forth to think and speak, that the light and life and liberty of the Sons of God may be his also. Never count the cost. It may wear you and weary you, but it will bring you into closer fellowship with Him who opened the eyes of the blind and unstopped the ears of the deaf. For my part, I mean to tell you all I know, as far as words will permit and as simply as possible, that I may assist you in your work. Concealment was too long the practice of teachers of the deaf. They seemed to think that they were in possession of an occult science which was their monopoly, and which they were at liberty to use for their own ends. That day has happily passed away. Knowledge is now proclaimed to be no man's personal property. It belongs to mankind, and still more so if it is necessary to the emancipation of numbers from mental and spiritual bondage.

THE LEARNER.

14. As the eyes of the deaf have to take the place of the ears in learning to speak, progress will greatly depend on the rapidity and accuracy with which they can detect every change in the organs of the

teacher. Every sound in the language is attended by lip, jaw, or muscular positions and movements which must be learned in order to be able to read and imitate the utterances of the speaker. Some of these are marked and definite; others slight and minute, and only to be perceived by a well-trained eye. Learning to speak and read speech is itself a good education for the eyes; but the progress is slow. A good start is cheering. Better therefore not to depend upon teaching to speak, but resort to the other available means. And first, drill the pupil in imitating you like a young recruit, till he is able to repeat every movement rapidly and closely. The more of this the better, for it exercises the muscles and gives full command over them. Then (*a*) again, learning to write on a slate or black board is a good exercise for the eyes, while it prepares for the next stage. Some teachers defer this, but, I think, to the loss of the learner; for when he comes to pronounce letters he is not prepared to distinguish them when written as he would be if he had become familiar with them by writing them. And in addition to this, the command of the muscles, the exercise of the will, and the sense of power which are certain to follow from learning to write, assist in the development of the imitativeness on which everything depends. (*b*) Toys and games also can be made a higher use of than to amuse only, by directing attention to the forms, sizes, and colours of their parts and arrangements, till the eyes become thoroughly familiar with them. (*c*) The organs of speech may themselves also be made to contribute something. A general immobility prevails amongst them, from the absence of appropriate exercises. Eating and drinking have been their only work. They might therefore be called into active exercise in imitating all the movements made by the teacher. Opening the jaws, protruding the lips, thrusting out and withdrawing the tongue to the greatest extent, will prepare for their more delicate use in speech. These are only gymnastic exercises, and can be made amusing while they instruct. They involve no great effort, for the voice does not accompany them.

But they reveal the temper and capacity, while they bring into closer contact and establish the control which are essential to progress. To fix the attention on any object requires mental effort. The eye of the uneducated deaf wanders from object to object because his mind is inactive. Such exercises will awaken thought and prepare for the close attention demanded by learning to speak. The transition to the use of the same organs in speaking is easy. About to perform on the most perfect of musical instruments, but under the control of another, through whom the teacher has to act, responsiveness to his every intimation will enable him to adjust it to the production of every tone. The greatest masters of the flute or violin had first to learn how to handle them. Their first attempts were awkward and the notes intolerable, but resolution and patience mastered every difficulty, till the sweetest modulations were educed. And so with the education of the voice. Let a couple of hours every day be given to its training, difficulties will vanish, the harsh become pleasant, and the awkward facile, till it discourses sweeter music than any instrument made by art and man's device. Patience ! patience !! patience !!!

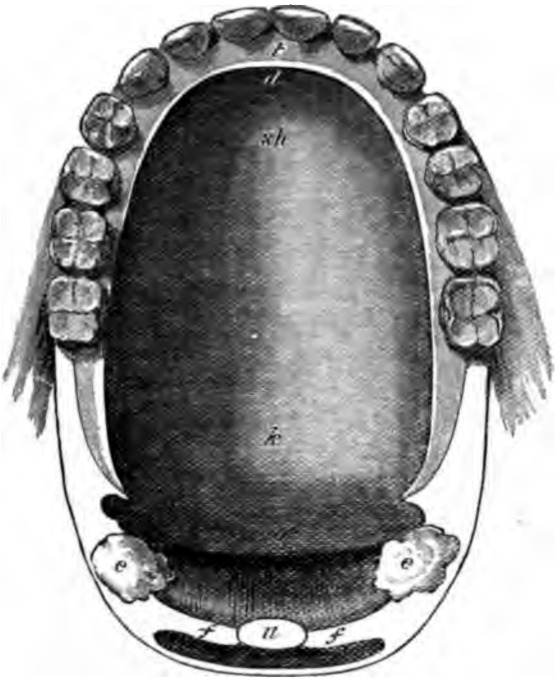
THE ORGANS OF SPEECH.

15. Some description of the organs which control and modulate the voice is appropriate here. They are the tongue, palate, gums, nostrils, teeth, lips, and jaws ; uvula, larynx, and pharynx.

(*a*) *The Tongue* is the chief instrument in modulating or controlling sound. Its station, shape, flexibility, and elasticity permit its free and rapid movement to every part of the mouth. Lying inside the cavity of the under jaw below the level of the teeth, it permits the free emission of breath and voice ; or if required, it can be raised to close the passage at any point or lend itself like a reed to every modification of sound. Accustomed to use it from our childhood in speaking, we have acquired complete control over it, so that it lends itself to the will as if self-actuated. But the deaf have no such control. Except in eating, it has never been used. Its efforts have been arrested and its muscles untaught and enfeebled. The will has yet to acquire its full mastery over them, and this can only be done by suitable exercises. From our use of the tongue in speaking, we have learned to keep it close down in its cavity to give free exit to sound, but in the deaf it generally fills a larger space, especially towards the throat, and therefore obstructs sound. They must be made aware of this, and mechanical means—as the finger, or better, the spatel—employed to assist them in withdrawing it into its proper place. By pressing it gently on the tongue and advancing it nearer the root so as to press it forwards, the muscles which govern it are brought into action and the necessary power acquired. But care must be taken that the tongue does not press against or protrude over the teeth. It ought to lie close and flat in its place, and this is its *normal state* to which frequent reference will be made in the following expositions. Some are found to have much less command of their tongues than others, and hence require more aid, but all must be attended to, that a sense of its proper seat may be permanent. Once the belief was prevalent that the deaf were all tongue-tied, and hence they were subjected to painful and hurtful operations. Rare instances of tongue-tying do occur, but they are easily discovered. Inability to protrude or move the tongue quickly must not be taken as a sufficient evidence of its being tied, for it may arise from the rigidity of its muscles and from want of use. Sufficient time ought to be given to appropriate exercises before surgical skill is called in. Instances too occur of tongues being too long or too short, and they have to be specially dealt with, but what has been already said will indicate the right method.

(*b*) *The Palate and Gums.*—By the palate is understood the hollow roof of the mouth extending from the upper teeth to the cavity of the throat. This is divided into two parts, the hard and soft palate. The hard is the part roofed with bone, and the soft with cartilage. The gum is also the palate or roof; but for clearness in our descriptions we mean to restrict the former term to the ridge close by the teeth, from which the arch of the roof springs, and the latter or palate to the roof or hollow itself. This is necessary, because each fills a special function in the production of sounds. But they vary much in shape and size. In some the gums are low, and nothing more than a prolongation of the palate. In others large and clearly defined. Again, the palate in some is deep, in others shallow, in some finely moulded like a dome, in others terminating like a gothic roof. Cases too have

FIG. 1.



This diagram is constructed for a double purpose. The first to illustrate the above description of the palate &c.; and the second, the positions of the tongue in the production of the consonants corresponding with the inscribed letters. In respect to the former, *t* is the gum deeper in front and thinning off on both sides; *d* the edge of the gum; *sh* and *k* the hard palate; *g* the soft palate; *u* the uvula, with *ff* forming the *velum pendulum*, which closes the passage behind it to the nostrils; *e e* the tonsils. In respect to the latter, *t, d, sh, k,* and *g* are the places of the tongue in forming these consonants, and these letters are used as references in the descriptions of their production as elements of speech.

come under notice of defective palates : the soft palate is absent and a large cavity is formed so that the passage of sound through the nose can never be prevented. The last defect is generally associated with a hare-lip, and it must be confessed presents the greatest obstacle to the acquisition of speech. But the others are minor, and may be obviated. A careful inspection of the mouth ought to be made before all instruction, so that it may be conducted with special reference to existing defects.

(*c*) *The Nostrils.*—These, in addition to other uses, may be called breath-tubes, through which the lungs are supplied with air when the mouth is closed. Hence they permit the passage of the voice and the production of nasal sounds. But this passage can be closed or opened. Dr. MaxMüller says, 'If, instead of emitting the vowel sound freely through the mouth, we allow the *velum pendulum*—or lower extremity, ending in the uvula of the soft palate—to drop, and the air to vibrate through the cavities which connect the nose with the pharynx, we hear the nasal vowels.' If we shut the nose, the sound would still be heard, but in a suppressed form and with more of a nasal twang. The unimpeded escape of the voice through the nose and the prevention of its partial escape through the mouth in the production of the nasal vowels, will require special attention. The absence of the soft palate most affects them, and makes it exceedingly difficult to pronounce *ng*, but this will be more fully attended to in its place.

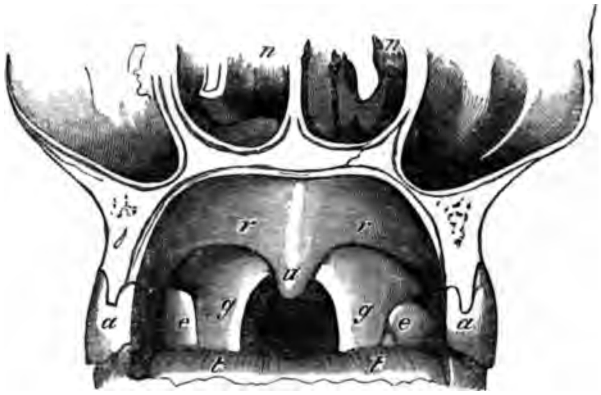
(*d*) *The Teeth.*—As the teeth are visible, their organic use in speech can be easily learned. In conjunction with the lower lip and tongue, they assist in the production of several aspirates and semivowels. Their exact position in these ought to be ascertained. They are the ivory walls of the mouth containing the tongue, which freely moves against them with less or greater pressure. They therefore furnish the easiest means of developing its muscular forces. Let it be made to press against them in every conceivable position and degree, and this will be the best preparation for their appropriate use. The teeth are not always alike in length and setting. In some they are long and close together, leaving little space between for the issue of the breath, in others they are short and wide apart, leaving too much space. Again, in some they are not perpendicular in their setting, and either stand out or in, materially affecting their position in respect to the tongue and lips, and through them the voice. The careful teacher will take all these variations into account, and see that the right adjustments are made.

(*e*) *The Lips* are chiefly used in one class of vowels, in aspirate and vocal stops, in one of the nasals, or, as already remarked, in conjunction with the teeth in the formation of certain aspirates and semivowels. They are the doors of the mouth, and furnished with a set of muscles by which they can be freely moved in all directions. The sooner the learner is made aware of their existence and taught to use them, the better. Let him imitate every possible movement of them. The time will not be lost. Evidently, lips vary much in size, form, and placing. Some stand ever open. Their muscles are, it may be, shorter, or the mental power over them very feeble. Or it may be the conformation of the teeth necessitates a greater effort to close them, and, when this is not required, they fall into their normal position. In any case they must be brought under complete control, and the exercises already suggested will best assist.

(*f*) *The Jaws and Cheeks.*—The part taken in speech by these is far greater than appears at first sight. The graduated withdrawal of the under jaw from the upper permits a great variety of vowel sounds; and the lateral action, by which the upper teeth may be brought to the front or rear of the lower, permits the free action of the tongue in guttural and other sounds. The elasticity of the cheeks not only accommodates them to all the action of the under jaw, but to the contraction and expansion required by certain vowels and consonants. Brought into close contact with the teeth, they regulate the escape of the sound and complete the tubular form requisite to its clear enunciation. As the lips, jaws, and teeth are most employed in giving external indications of the respective sounds, so that the deaf can be taught to read them in another, early attention ought to given to their muscular play and thorough mastery. The breath and voice will be described when we come to the practical part of speech.

(*g*) *The Uvula* is the lower extremity of the soft palate (*u* in fig. 2). Formed of cartilage, it is very flexible, and assists in closing the passage to the nose, so that the voice has to pass through the mouth. But in nasal vowels it is withdrawn, leaving the passage free, while it presses against the back of the tongue and prevents any escape through the mouth. No doubt it also contributes largely, from its elastic nature, to the vibrations of some vowels. Its length varies in individuals.

FIG. 2.



Here the section is perpendicular from the posterior molar teeth *a a*; *t* is the rear of the tongue; *e e* the tonsils; *u* the uvula; *r r* anterior arches of the soft palate; *g g* posterior arches of the soft palate; *n n* section of nostrils.

(*h*) *The Epiglottis* (*e.g.* in fig. 3) 'is a leaf-shaped, elastic cartilage, attached by its narrower end to the thyroid cartilage, and possessing a midrib overhanging and corresponding to the fissure of the glottis (fig. 3). The broader end of this leaf points freely upwards towards the tongue, in which direction the entire cartilage presents a concave, as towards the larynx a convex, outline. In swallowing, the epiglottis falls over the larynx, like a saddle on the back of a horse' (Dr. M. Müller). The dotted line at the extremity of the epiglottis indicates its direction in falling (fig. 3).

(*i*) *The Pharynx* (fig. 3) is the space behind the tongue which is increased upwards when the curtain—*velum pendulum*—drops down against the tongue, and allows the sound freely to vibrate through the cavities of the nose. At other times it affords additional space for air sounds in aspirate and vocal stops, when the epiglottis closes the passage and an explosion follows.

Fig. 3.

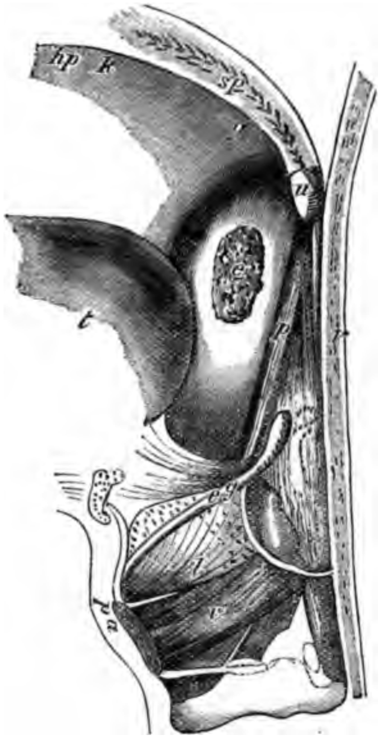


Fig. 4.

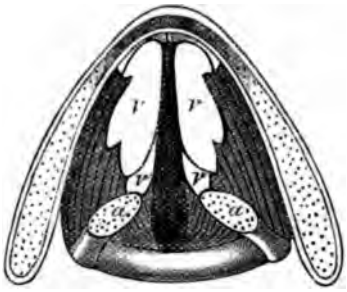


Fig. 3. This is a section of the throat and mouth constructed to illustrate the seat of the voice and the organs in its immediate vicinity. *l* is the larynx; *e g* epiglottis which falls down and closes the passage; *v* vocal cord; *t* tongue; *e* tonsil; *u* uvula; *s p* soft palate; *g* place of the tongue in *g* stop; *k* place in *k* stop; *v* vertebral lining; *p* pharynx: *p a pomum adami*, or projection formed by the larynx.

Fig. 4. Section of the larynx, *a a* the arytenoid cartilages; *v v* vocal cords. Between these the opening, wider in front, is the voice-passage or glottis, around which are the various ligaments and vocal cords which are called into action according to the tone.

(*k*) *The Larynx* 'is the aperture between the two vocal ligaments, that is, between the two inferior vocal cords, as they are sometimes called.' These are *v v* in fig. 4. The orifice between them is the passage through which the air passes, and, in doing so, generates the voice. Its action on these cords, which vibrate freely, has, no doubt, much to do with the quality of the tone. This aperture can be contracted or expanded according to the pitch, through the action of the muscles on the cords, and is very similar to the orifice of the lips and the muscular action by which it is contracted or expanded for higher or lower notes in performing on a wind instrument.

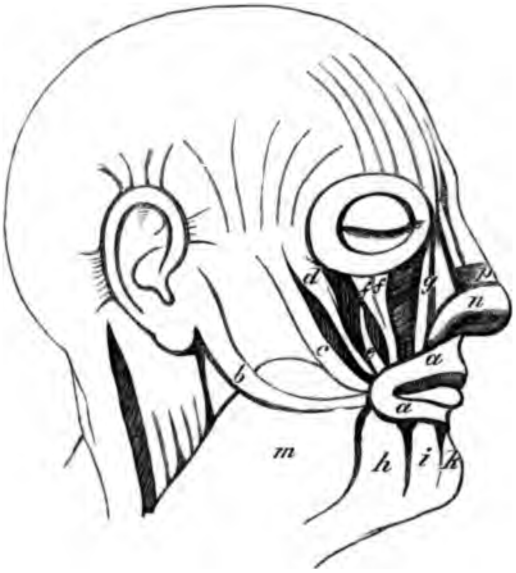
These constitute the principal organs of which the teacher should possess some knowledge, that he may intelligently direct his pupils in adjusting theirs. If further information is sought, it may be found in anatomical works.

LIP READING.

16. Teaching the deaf to speak is only half of what has to be done to prepare them for free, pleasant intercourse. They ought to be able to discern what others say by the motion of their lips and other facial indications. Sufficient attention has not been paid to this part of their education. It has been assumed, I think incorrectly, that it would certainly follow from learning to speak. No doubt, to some extent it does ; but it ought not to be forgotten that familiarity with the emphatic and exaggerated manner of the teacher is not a sufficient preparation for reading what is said by friends or strangers. Mouthing errs as much through excess as natural expression often does by indistinctness. Besides, the effort is too great and exhausting to be long sustained. Society ever avoids a tax upon its patience. Ease and freedom in speaking, as well as good hearing, are expected from those who wish to take their part in conversation. If, therefore, the deaf have not the same facility in reading as in speaking, they must still feel themselves more or less isolated and their education so far imperfect. But I have long been convinced that much more might have been achieved had reading received the same study and

attention as speaking. No work on the subject has been published; and from all I can learn, teachers are not guided by any definite principles, based on the distinctive muscular movements of the lower part of the face, in the prosecution of their work. The learner is left rather to what his eye can detect in his teacher's manner, than systematically educated in what is common. This is an untilled field, and I offer my humble contribution in the hope that abler teachers will follow. The theory which guided my observations is the following:—*All vocal utterances are attended by distinctive muscular action externally discernible.* But it is no longer a theory. After a long course of careful analysis of every sound in the language, it has been amply verified; and therefore throughout this work, whenever elementary sounds or their combinations are treated, the muscular actions and changes by which they are attended on the face will be noted and described. Reading and speaking will thus be more closely associated, and the learner become early familiar with the general laws of both. But let it be fully understood that success in

FIG. 5.



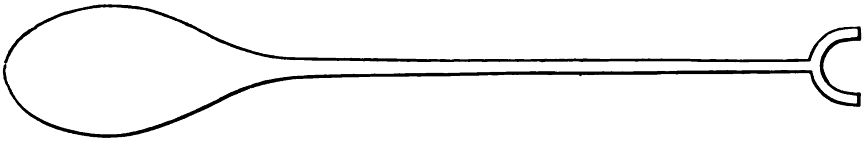
lip-reading depends on the syllable rather than its elements. Syllables and not letters are the roots of all languages; and they furnish the muscular action on whose knowledge reading depends. But of this more in another place.

17. In the above drawing the principal muscles of the face affected by speaking are depicted. Their anatomical names will not be used, but the letters of the alphabet, in referring to them. As they are in pairs, one on either side, the same letter for each pair will be repeated. The muscle connecting the mouth with the ear is called buccinator—this is *b*. The next above it zygomaticus—this is *c*—and so for all the others. This will facilitate reference and avoid the repetition of difficult terms.

APPLIANCES.

18. Allusion has been already made to the spatel as a substitute for the finger to press the tongue. This can be made of bone or ivory, thin as a netting-mesh, and of the same shape as this drawing.

Fig. 6.



19. A mirror is used by some teachers to concentrate the attention of the pupil on the motions of the mouth, as the uneducated deaf are in the habit of trying to learn our thoughts from the expression of our eyes. In order to avert this a mirror is used which may exclude them from the view. It ought to be eighteen or twenty inches in length and eight or nine in width, lightly but strongly framed in wood, so that it can be easily handled. In using it the teacher and learner sit side by side and hold it lengthwise before them. Each will thus be

able to see the mouth and the adjacent parts of the face of the other, while the upper parts are excluded. In a short time it can be laid aside, for the habit is soon formed of looking to the mouth, rather than the eyes, to learn what is said.

20. Very soon it will become evident to the teacher that all sounds fall into two classes :—1st, those in which the adjustments of the organs in their formation are more or less visible, and 2nd, those which are formed by invisible adjustments. The former can be readily learned, for they can be seen to be imitated ; but the latter are difficult, for no art can enable the learner to discover by the eye the precise position of the organs. Various expedients have been tried to obviate this difficulty. A sectional drawing of the mouth showing the position as nearly as possible is one, but very imperfect, because the learner is not guided by the same knowledge as the teacher in forming an idea of it, or he may regard it from a point of view which makes it worse than useless. Some of the most advanced teachers rigidly exclude all such illustrations as an unwarrantable departure from their system. This is not science but slavish adherence. The best system is that which employs the best means. Imitation is the master principle in learning to speak—imitation of what is visible. But as the invisible cannot be imitated, an accurate model similarly adjusted may supply its place. Pictures, models, and maps are admitted in teaching language : why should they be ignored in teaching speech? System answers, 'No. Let the learner be kept on trying to see the invisible till, not by knowledge, but by chance, his organs drop into the right relation.' Convinced of the fatuity of such a method, I designed a set of models of the organs which can be adjusted as the natural organs are in the production of all the invisible sounds. As the object itself is always better than a drawing, I asked a dentist to supply me with models of both jaws, similar to those which he was in the habit of making, that he might be better able to supply the lacking teeth of his patients. First, he took an accurate cast of

both in wax, and then transferred them to plaster of Paris. Nothing could be more exact to the original. I then procured some fine plastic clay, and of it moulded a number of tongues, each of which received the form of the tongue in any given sound as nearly as I could conceive. But this I found still imperfect, for the space between these tongues and the palate in some sounds was still invisible. This, however, was speedily obviated by dividing the upper jaw into two parts by a perpendicular section from the point between the two large front teeth and the point of the uvula. Now the space between the tongue and the palate could be seen, as well as the precise places pressed by the former in a number of sounds. These models I have often found useful when all other expedients had failed. However, a larger experience in teaching has enabled me to dispense very much with their help, for unthought-of expedients cropped out in the work. My own knowledge of the organs of speech was very much increased by them, and I found that the learner had something more than habit to trust to in the accurate enunciation of the sounds of the language. I would therefore recommend the use of something of the sort to those who are learning as well as teaching. We are all more or less conscious of the organic changes required by speech, and our ear corrects us when we err; but, where there is no ear, the greater the need of some method by which the speaking deaf can correct themselves.

Another collateral advantage followed from the use of such models in a more accurate knowledge of the true form of the organs. I had often used drawings of them by others, but a moment's comparison with my models proved that not one of them had been taken from nature. They were more or less imaginary. As it is, absolute accuracy has not been achieved, for we have to feel rather than see the actual distances between the tongue and the palate in the vowels formed there. But much practice in teaching fosters increased ability to determine the place of the tongue, like the hand of the educated blind in performing on a musical instrument. The diagrams which illustrate this work are in harmony with these models of the mouth, and with the results of a careful investigation of the form and position of the tongue in all invisible sounds. When the sounds are visible, illustrations are useless. Nature is a better guide than the draughtsman. Our business is to follow as far as she leads.

PHONETIC USE OF THE LETTERS.

21. It may not be out of place to remark here that in all our descriptions and illustrations, the letters of the alphabet are not used nominally, but phonetically. The convenience of names for them when we speak of them apart is considerable, but infinitely outweighed by the unnecessary labour and defects it entails on the learner. Even the vowels are not exempt, for each has several sounds, and its name is only one of them. *B* is named *be*; but suppose another vowel follows, what becomes of the *e*? *F* is *ef*, but where is the *e* in *foot*? And if the names of the other letters are tested in the same way, the phonetic value of each will be learned, and this is nothing more than the place it fills in the composition of a word or syllable. In describing the position of the organs in the production of each letter, its phonetic value alone will be considered.

22. Our alphabet is very inadequate and defective. The same symbol is used for sounds as diverse as can be, as *c* for *s* and *k*, and we have no symbols for *th* in think or in *th*at, or for *ch*, *sh*, and several others. The vowels, too, are sadly deficient in number. One has to take the place of two or three others, to its own great loss. If a spelling reform is ever attempted, it is hoped the good sense of the nation will lead to the adoption of an alphabet which will adequately symbolise every phonetic element. The relief to our children, who have enough to do in learning the rudiments of knowledge, and to foreigners,

to whom our language is most formidable, not from its construction or etymology, but spelling alone, would be immense. But the boon to the speaking deaf and their teachers would be the greatest that could be bestowed. It would reduce the labour at least one-half of what it is at present, and then it would do away with the uncertainty which must ever be connected with variable symbols in the eyes of those who cannot correct themselves by referring to the ear.

23. Prof. Graham Bell has invented a phonetic alphabet for all the definite sounds of the language, which has been used with considerable success in the education of the deaf. His method is called 'Reading from sight'; and there is no doubt that when the learner has been taught to pronounce the sounds corresponding to these symbols, and both are associated by speaking and writing, reading any composition printed in them is much easier, from their definite and invariable nature, than in the old symbols, for no symbol represents two sounds. But unhappily, our books are not printed in Professor Bell's symbols; and before they can be pronounced, their value and variations must be learned *de novo*, thus entailing the same labour which would have been required had the Professor's symbols not been used. Speaking and reading may be somewhat facilitated by such symbols, but this is more than counterbalanced by having to learn and use another set of symbols. The diagrams of the organic adjustments in Professor G. Bell's system are helpful, but it would be a great mistake to suppose that the learner has only to look at them attentively in order to imitate them correctly. There is no such royal road for him. Would there were! No, the practical teacher often finds that all his expedients fail, at the time, to give the learner a clear conception of the precise adjustment of his organs for a required sound. His own organs and his manipulations of those of the learner are his final and efficient resort. Let it then be well understood that our descriptions and diagrams are for the instruction of the teacher, who has no other means, rather than the scholar, as a thorough understanding of how

we speak can alone enable us to teach the dumb to speak. My work is for the uninitiated.

24. In the earlier part of the following course, some exaggeration in the labial expression of sounds is not only admissible, but necessary, that the unskilled learner may be able to discern them at once. It wearies both, if frequent repetitions are required before what is said can be understood. But as soon as possible this mouthing ought to give place to the more natural manner, that full preparation may be made for general intercourse. Every sound ought to be distinctly expressed, but the exaggeration of the labial action produces muscular changes which have no place in free speech. A well-educated deaf person ought to be able to understand any one who speaks distinctly.

THE ELEMENTS OF SPEECH.

25. Now, as the deaf scholar has to see in order to learn, it is essential that his station should command a full view of the organs of his teacher. They should therefore be face to face on the same level, like two persons of the same height engaged in conversation, but not too near. This permits looking into the mouth and discerning every change of feature. The congenital or born deaf have no idea of sound as such, but they can all feel the material vibrations attendant on its production. Let a deaf mute place his hand on a piano when some one is performing, and he will at once show his perception of its vibrations under the music. This is an important feature in his education, for it enables him to feel his own voice as well as that of his teacher. In fact, he learns to discriminate somewhat between sounds, as high or low, strong or weak. The business of the teacher is therefore to assist him in the production of sound and the adjustments of his organs.

26. *Breath and Voice.*—Speech is made up of two elements, breath

and voice. All else are only modifications of these. The aspirates and explosives belong to the former; the vowels, semi-vowels, and vocal stops to the latter. The deaf can breathe freely, and therefore we begin with the aspirates; for the principles by which we shall be guided in the arrangement of these lessons are to proceed from the easier to the more difficult, from the known to the unknown, from the visible to the invisible, knowing that the full mastery of the one is the best preparation for the acquisition of the other. Teachers of the deaf are not quite agreed upon the priority of claim among these classes. Some think it is better to begin with the vowels, others with the aspirates. It matters little, only the learner ought to be considered. He will find it easier to begin with aspirates, and the exercises they involve can be made a pleasant and profitable introduction to the vowels.

The aspirates are *h*, *f*, *th*, *s*, *sh*, and *ch*. They are all modifications of breath and breath only. Each has to be learned apart, and its full value as a phonetic thoroughly appreciated, before any attempt at its combination with other sounds is made. The temptation to hasten on to obtain immediate results must be resisted, because it would be followed by confusion. Distinct enunciation depends upon accurate adjustments of the organs, and these can be best attended to in learning each element of speech independently—not quantity but quality.

THE BREATH.

27. It is easy to breathe, but difficult to control the breath for the uses of speech. The deaf know nothing of this, and must therefore be carefully taught. And first, let the learner place one hand on the chest of the teacher, and the other with its back towards his mouth. Then let the teacher breathe, and the learner will perceive the inflation of the lungs and the expulsion of the air in each inspiration and expiration. Let him imitate this. Then fill the lungs slowly or quickly

in the same conditions, and expel the accumulated air slowly or quickly, repeating the exercise till the learner can follow closely. Breathing is not blowing. In the former the breath escapes through the mouth, but in the latter it is forcibly expelled through a narrow aperture formed by the lips. Carefully avoid the latter. As yet the learner has very little knowledge of the economy of his breath for aspirates. It is poured out in a large volume and speedily exhausted. But if a tube is formed by rolling up a sheet of paper, and the breath passed through it quickly, or slowly, his hand will detect the difference and its cause. Do not hesitate to use an appropriate gesture to indicate large or small, strong or weak. Again, take a sheet of paper and hold it so that one corner will freely vibrate under the breath. Then place it before the mouth and give illustrations of slow or rapid emissions of the breath, as seen by the duration of the vibrations, and the learner will soon perceive the causes and imitate them closely. Perhaps he will allow his breath to escape through the nostrils also, but this ought to be at once checked by holding his hand to your own nose in expiring, proving to him the absence of the breath there. In addition to this, if he opens his mouth well and holds up his head, there is little danger of the breath escaping through the nostrils. Look to the tongue also, and see that it lies close down in its cavity, else it will obstruct the free expulsion of the breath. Such exercises as these will lay the foundations of the work, for they make the learner conscious of the possession of one of the two elements of speech. He also acquires some mastery over it, and feels delighted.

28. *h* is a pure aspirate, for it is the breath expelled a little more forcibly than in breathing. The hand on the chest is the best guide to the additional impulse, and the other before the mouth as to its volume. The latter ought to be well open, but without an effort. We have nothing to do with the abuse of this letter, the Cinderella of the alphabet, but shall endeavour to give it due place and value. It ought to be heard where usage requires, but not too strong. Enough

if it is heard. There is some difficulty in combining it properly with a vowel. But this will be dealt with in the right place.

Reading.—The imperfect enunciation of *h* by all classes makes it very difficult to be read by the deaf. Still, the impulsion of the air gives an outward movement to the lips which are adjusted to the form required by the vowel with which it may be united. This is slight, but enough for a practised eye. Attention ought to be directed to it then. It needs no diagram. But the independent production of this aspirate differs considerably from its associated. Joined to a vowel, the organs anticipate the vowel, and so it may be said to have no fixed expression of its own. It is rather the rough breathing initiating the vowel itself, than an independent element of speech. Never following, but always preceding a vowel, its reading very much depends on the manner in which the vowel is initiated, and this is by a glottal effort or a quick impulse given to the breath followed by the voice. This impulse is the best sign for the reader.

29. *f* is the second aspirate in which the place of the organs is visible. In this the upper teeth are pressed lightly on the under lip, which meets them very near the outer edge, to permit the free passage of the breath, which is expelled from the chest by a quick impulsion. Were it on the inner surface of the lip instead of the outer, the soft flesh would spring up and close the little passage. To secure the right position, the lip is slightly withdrawn. The cheeks are also called into action, for they press close to the teeth, and thus confine the air to the middle passage, and concentrate it on the place of expulsion. The eye of the learner should be directed to each of these points, till he imitates them all and produces a clear *f*. It will also be necessary to attend to the tongue, which ought to lie close down in its cavity, to permit free egress to the air. A greater command of the organs will be obtained by exercising them on these two sounds :

h-f h-f h-f f-h f-h f-h h-f h-f h-f f-h f-h f-h

Care ought to be taken against the tendency to unite them in one impulse, no matter how rapidly they are conjoined, if each is distinctly pronounced.

Reading.—The recession of the lower lip through the action of muscle *a a*, and of the cheeks *b c* and *m* in contracting and pressing them closely against the teeth in this sound are easily detected. And again, the transition from *h* to *f* or *f* to *h* will not only render the muscular action in each more distinctive, but more evident. The teacher will soon learn the great value of such transitions. In fact, the muscular movements from one letter to another are often more marked than in either, and furnish the anticipation of what is coming which grows out of all related movements.

30. ~~*th*~~, as in think, the third aspirate, very much resembles *f*, only the tongue takes the place of the lower lip in pressing against the upper teeth. In order to allow the edge of the tongue to fall into its right position, the under jaw recedes a little, and the under lip touches the under side of the tongue, and this prevents any of the stream of breath passing beneath instead of above the tongue. Let it also be observed that the tongue is reduced in thickness at the place of contact, and presses against the under edge of the upper teeth just at its tip, by which the breath is confined to a channel terminating at the front teeth, where it is expelled by an impulse from the lungs. By advancing the back of the hand of the learner near the teacher's own mouth, he will feel the place and extent of the current. By keeping the tongue, too, in the *th* place, and opening the lips, its position can be easily seen. The errors to which the learner is liable are, either in permitting the breath to escape outside the upper teeth ; or in pressing his tongue against the inside instead of the edge of the teeth ; or it may be in thrusting the tongue too far out, or not concentrating the breath on the given place by cheek pressure. The first can be obviated by intimating, as in *f*, that the cheeks must be drawn close to the upper teeth, and aid the tongue in directing the breath, and the others by

any simple illustration, as uniting the four fingers of the right hand to resemble the teeth, and pressing them against the first finger of the left for a tongue. The pressure of the tongue also requires regulating; for if too forcible it will arrest the breath, or if too gentle it will permit too great a current, and rob the sound of its audible aspiration.

Reading.—The lips have little to do in the production of *th*, and retain their normal form, only the under follows the action of the jaw, and is brought nearer to the upper, and in a straight line with it. However, the cheek muscles are called into play, as in *f*, in pressing them against the teeth. This reduces their roundness, and throws out the lips a little. If the eye is trained to detect these muscular changes, greater progress will be made.

h-f-th h-f-th h-f-th f-h-th f-th-h th-f-h th-f-th, &c.

BREATH STOPS.

31. Here the aspirates must give place to the Breath stops, because *s* and *s h* are invisible and more difficult for a learner. By Breath stops as a term, is to be understood a real arrest put upon the breath by closing certain of the organs, so that it is not heard till the pressure employed has been relaxed. This permits the breath to burst forth or explode, and hence they have been called explosives. *p*, *t*, and *k* are of this order, and as *p* is formed by the lips only, it can be seen and felt.

P.

32. *p*, as a stop, is purely an arrest of the breath by the lips, which are pressed well together. This is the visible part. The explosion which follows is incidental on the relaxation of the pressure. If followed by a vowel, no explosion is heard, but the voice follows hard upon the opening of the lips. It will also be seen, in the right place,

that the pressure anticipates the form which the lips will assume in the vowel that follows, as may be observed if such combinations as *pa*, *po*, *pu*, are tried. But it is better for the learner to understand the phonetic value of *p* as an explosive, and allow its after combination with vowels to reveal these variations. Should there be any difficulty in securing a clear articulation of this letter, it may be overcome by the learner arresting the emission of *h* by closing the lips a second or two, and then opening them quickly. An explosion will follow which may be felt on the hand, or perceived in the flight of little pieces of paper laid on any flat surface, and brought near the lips. There is a liability at first to let the breath escape through the nostrils when arrested by the lips, but this can be prevented by pointing out that the arrest of the breath in this is similar to that of the air in blowing. Some do not press the lips together, others do not make any effort to arrest the breath; but if they are led back to the sounds already mastered, and the impulse given to the breath in each, the best preparation will be made for the right articulation of *p*. It need hardly be remarked that the voice has no part in the production of any of these sounds. They are breath, and the learner must be guarded against any mingling of the voice with them, as *m* with *p*. Thus he comes to perceive their true nature, and learns to distinguish them in his own organs by the touch.

The air in *p* and similar sounds is enclosed in the mouth and pharynx, so that the pressure does not return it to the lungs. A few exercises in thus retaining the air will best prepare for *p*.

p-th-f-h th-p-f-h f-p-th-h h-th-f-p h-f-th-p th-f-p-h, &c.

Reading.—The action of the *a a* muscle (fig. 5) all round the lips in pressing them together, and of *mm* in keeping the cheeks close to the teeth in the arrest of the breath, are so evident, that the learner easily discerns them and imitates its articulation. The sounds with which it is most readily confounded are *b* and *m*, but the pressure and place of the lips are different in both, and when treating of them these will be carefully described. If the eye from large practice gets accustomed to the right positions, the best preparation is made to detect the differences which mark them off from other sounds.

These four breath-sounds belong to the visible class, and they are all that our language contains. It is therefore found advisable, before advancing to the second class, to combine them with a few of the easiest vowel-sounds which may also be called perceptible, because the position of the organs can be seen in their production. But to assist the teacher, something must be said of the voice itself.

THE VOICE.

33. Breath and voice are separate and different sounds produced by special organic provisions. The former, as has been seen, are only modifications or adaptations of the breath which life requires ; but voice is the same air passing through the larynx, which is provided with all that is necessary to turn it into a musical form. In fact, it is made to play the same part as when breathed into a musical instrument through the lips of an artist. A minute description of the voice instrument would be of little use here. Our object is practical, and nothing superfluous will be introduced. The larynx (see figs. 3 and 4), is immediately behind Adam's apple (Pomum Adami), and vibrates from all vocal utterances. This vibration is communicated to the cartilage which lies between it and the surface, and hence can be felt by the hand. But the vibration, though strongest here, is not confined to it, but extends down into the chest and upwards to the lips. The deaf can feel this vibration, and therefore it may be made most helpful to them in learning to speak. Eyes are of little use here. The fingers must take their place.

As we have already said, 'no idea of sound or *quality* of the different tones can be communicated to a deaf-mute; yet every one sees that, as it would be illusory to attempt to restore in him the consciousness of tones and of harmonic inflexions, so it would be an unreasonable pretence to expect that from the lip which had not been perceived by the sense; yet by means of touch he can come to distinguish and reproduce the *quantity* of the voice, and by mechanical assistance, I believe, he can also be brought, in the end, to pour out musical notes, though he never may have any more idea of them than the blind have of colour, which by means of differences of feeling they may truly come to name, but never to know.'

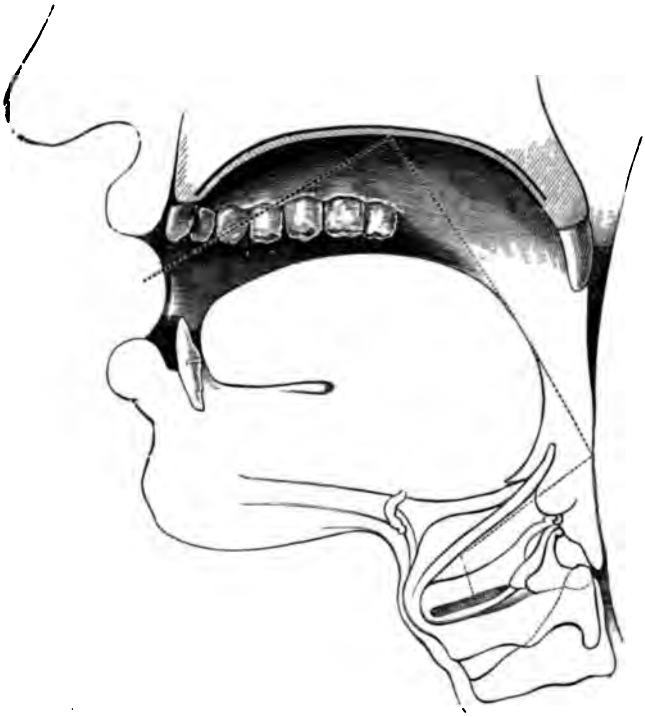
'To resolve, therefore, as far as it is conceded, this arduous and intricate problem, the master to whom the paths of nature are closed turns to art, and by applying the hand of the learner to the various parts of the proper vocal organ, in relation to himself, and on the points where he can best perceive the vibrations which he wishes to provoke, exerts himself to give him indirectly an idea of the force, duration, intensity, and quality of voice which he should produce; of that which should be united or apart in pronunciation; and also of the pauses or the accents either of words, of propositions, or of complex diction.'—*Tarra.*

These quotations, made from the essays of one of the ablest and most successful of masters, are to lead the attention of the teacher to the organ which he has now to direct and control in all vocal utterances. As has been seen, the voice has its birth in the larynx, but, like every other organ under the power and direction of the will, it has to be brought into exercise by reason. The deaf are possessed of the organs of speech, but they are ignorant of their use, for the sense is absent which would have made them subject to the will. But another sense can take its place, and do part of its service. Touch has to be made sensitive to the action of the voice and the difference of its tones. Hence the business of the teacher is to cultivate touch by suitable exercises till the will is able to act upon the muscles of the larynx, and regulate the glottis to every vowel-sound. The voice in deaf and dumb children differs much. Some can utter a few sounds clearly and softly. It is a valuable foundation, and little more has to be done for them than lead them on to all the remaining sounds, maintaining, if possible, the same softness. Others, again, can utter a few sounds, but very imperfectly. More effort is required to correct their voices and guide them to their full control. But a third class either utter no sounds, or only such wild and discordant ones as are out of place in speech. These have to be reduced till the right tone is secured. This is the most trying class for the teacher, for not unfrequently they seem indisposed to attempt any utterance. But patience, firmness, and gentleness will triumph. Never despair. The rough can be made smooth, and the harsh sweet. Some of these may turn out the best speakers.

34. If the larynx is carefully manipulated, the transition from breath to voice, as a movement, is perceptible. This movement is upwards and forwards, and is caused by forcing the air through the larynx. The pupil ought to be made acquainted with this movement. But in addition to this, if the finger is pressed lightly below or above against the larynx, the tone of the voice is varied : sharper if the pressure is upwards, deeper if downwards. Acquaint the pupil with this also, so that he may come to a clear conception that the voice comes from that point, and is affected by voluntary effort. Then let his hands be placed, one on the chest and the other on the larynx, articulate *a*, as in father, in a good firm tone, and invite him to imitate you. Possibly he may do so at the first effort, but if he fails, repeat the process, and let him feel with his hand on the throat the action in passing from breath to speech. Here a little patience and thoughtfulness may save much toil. It is of capital importance that the voice should be clear and sweet, and this greatly depends on the right adjustment at first of the vocal organs. A bad habit is difficult to unlearn. For a false voice prevents this adjustment, and imposes another which is in danger of becoming fixed, so that the organs will expand into it and fall into an abnormal action. Secure, therefore, a clear

articulation of this vowel, and there will be little difficulty with the others. At present, only four vowel-sounds will be described, and these the simplest, that they may be conveniently combined into syllables with the aspirates already learned. These four are *ā* in *father*, *ä* in *fate*, *ō* in *bone*, and *ū* in *full*, and the reason for adopting these rather than others is that the last two are produced by projecting the lips from the lines of the others without any alteration in the relation of the tongue to the palate. *o* is *a* modified by projecting and rounding the lips, and *u* a similar projection without rounding. By these means two pairs of analogous sounds are closely associated and fixed, like the full tones in a musical scale.

Fig. 7.



ā, e.g. *father*. The dotted line indicates the passage of the sound from the glottis to the lips.

35. *ā*. It might be justly said that this is the least artificial of all the vowels, for it is the voice permitted to pass through the mouth

when it is fully opened, without obstruction or deflection from any organ. Hence it has more resonance. We seem to hear it as it issues from the larynx. In fact, with a slight change and a little more effort it takes a trilling form, and is our guttural *r*, but this is not the time for its introduction. Attention, too, must be given to the inflation of the lungs, as in the aspirates, for the voice makes large demands upon the breath before articulating this or any other vowel, and a set of exercises arranged for strong or weak, rapid or prolonged utterance is provided.

In addition to what has been already remarked about the defects which may become fixed by not securing a pure vocal utterance, there are some others to which the learner is liable, which ought to be avoided. The mouth may be too wide or too narrow, and the tongue, instead of lying close in its cavity, raised a little ; or the lips tightened and projected, or close at the corners. Better begin by having them closed in their normal state, and then opened to the required place. Let the learner see that this vowel is formed without effort, as when we breathe in sleep. The looking-glass and the spatel may both be used to correct defects. The former will enable the learner to see the extent to which the mouth opens, and the latter will assist him to place his tongue properly.

Reading.—*a* from its simplicity is difficult to read. The action in its production is concealed, except the impulse by which it is originated. The aspirate *h* is also so very like it, that they are often confounded. Still, when it is combined with aspirates or stops, as will be seen, it is readily detected, because it differs so much from all others in similar relations. And this holds true generally where the muscular action is the least discoverable.

36. In *o* all the organs are in the same position as in *a*, except the projection and rounding of the lips. Let *a*, as in *map*, be first pronounced. Hold it on and round the lips, *o*, as in *go*, will follow. If the learner is taught to pronounce it in the same way, he will avoid the

errors of too great expansion or contraction of his cheeks. The rounding of the lips will give the cheeks the necessary tension without any additional muscular action. If the voice is well exercised in *a* and *o* rapidly conjoined, their relation will become more evident, while the lip and cheek muscles *a*, *a*, *b* and *c* will acquire more power and precision.

Learners fail in the rounding of the lips. The aperture is too wide, and *u* rather than *o* is formed. But this can be easily corrected by the looking-glass, or a close inspection of the teacher's mouth. Full control over the cheek muscles is essential to this vowel.

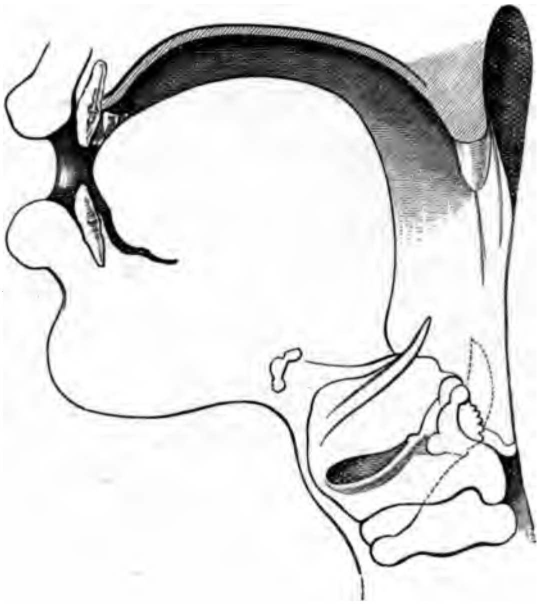
Reading.—The rounding of the lips and contraction of the cheeks towards the angles of the lips makes this vowel very distinctive, and therefore it is easily read. Care, however, should be taken to familiarize the eye of the learner with the special muscular action attendant upon it, and as distinguished from *a*.

37. In *ä* all the organs retain the *a* position, except by the nearer approach of the jaws, in raising the under about half the distance between it and the palate. These vowels are named graduated, because they are formed at a series of points between two extreme limits, the greatest expansion of the under jaw being the one limit, and the palate the other. When all the vowels are in review, this can be illustrated by a diagram. No other action is therefore necessary to form *ä*, as in *fate*, from *ā*, than in raising the lower jaw to the proper place, like the partial closing of an open door. The errors also to which learners are prone in the former *a* are likely in this, with a strong tendency to bring the root of the tongue nearer to the soft palate. Should this be observed, the spatel ought to be used, else the vowel formed with the tongue so raised would be imperfect.

Reading.—The nearer approach of the lips in *ä* distinguishes it sufficiently to permit the learner to read it with ease. By combining *a-o-ä* also as *a* and *o* have been, and arranging them thus : *o-a-ä*, *ä-o-a*, *a-ä-o*, *o-a-ä*, *ä-a-o*, the eye will be assisted in following the muscular movements, and better learn their special action in each by their differences.

38. *ŭ*, as in *full.* This, like *o*, is formed from the *ä place*, with the tongue drawn back somewhat by projecting the lips, which, instead of being rounded, retain about the same relation to each other, only the under is projected a little beyond the upper, and raised somewhat. If such words as *bull*, *nuth*, are pronounced and the *t* dropped, the position of the lips in *u* will be best ascertained.

FIG. 8.



ā e.g. *mate.*

The chief errors into which the learner falls in pronouncing *u* arise from shifting the tongue or contracting the cheeks. Till complete command over the organs is acquired, any express movement in one induces a similar movement in others, from their muscular connection, as may be illustrated by the fingers, from being habituated to act together, and this can be counteracted only by directing attention to the place of the organ, and by frequent repetitions originating a new habit. The more speedily independent action in each organ can be learned, the greater will be the progress.

Reading. The chief muscular action in *u* is that of *a* and *m*, fig. 5, and as in *o* it is evident that *b* and *c* are called into use, so that the cheeks partake in the movement. These are enough to enable the learner to read it and distinguish it from *o*, which ought to be united with it as an exercise, as *o-u*, *u-o*, *o-u*, *u-o*. Then, as a further exercise, let *a-o-ä-u* be pronounced in every possible arrangement, as *o-a-ä-u*, *ä-o-u-a*, *u-o-a-ä*, *u-a-o-ä* &c, till they are thoroughly mastered both in speaking and reading,

SYLLABLES.

39–40. Four aspirates and four vowels have been learned, and can now be appropriately combined into a number of syllables. And first, because easiest to the learner, the aspirates shall be initial, and when well learned, then the vowels. But two things must be carefully attended to. The distinct articulation of each sound, and then their rapid union, to prevent, in the case of the stop aspirate, an explosion of the breath before the vowel.

h	ha-ho-hä-hu	ho-ha-hä-hu	hä-ho-ha-hu	hu-ha-ho-hä
f	fa-fo-fä-fu	fo-fa-fä-fu	fä-fu-fo-fa	fu-fä-fa-fo
th	tha-tho-thä-thu	tho-tha-thu-thä	thä-thu-tha-tho	thu-tho-tha-thä
p	pa-po-pä-pu	po-pa-pu-pä	pä-pu-pa-po	pu-pa-po-pä

DISSYLLABLES.

ha-fa	ha-fo	ha-fä	ha-fu	ha-fa	ho-fa	hä-fa	hu-fa
ha-tha	ha-tho	ha-thä	ha-thu	ha-tha	ho-tha	hä-tha	hu-tha
fa-tha	fa-tho	fa-thä	fa-thu	fa-thu	fo-tha	fo-thä	fu-tha
tha-pa	tha-po	tha-pä	tha-pu	tha-pa	tho-pa	thä-pa	thu-pa
pa-fa	po-pa	pä-pu	po-ho	pu-fo	pu-pa	thä-po	pu-thu

ACCENT.

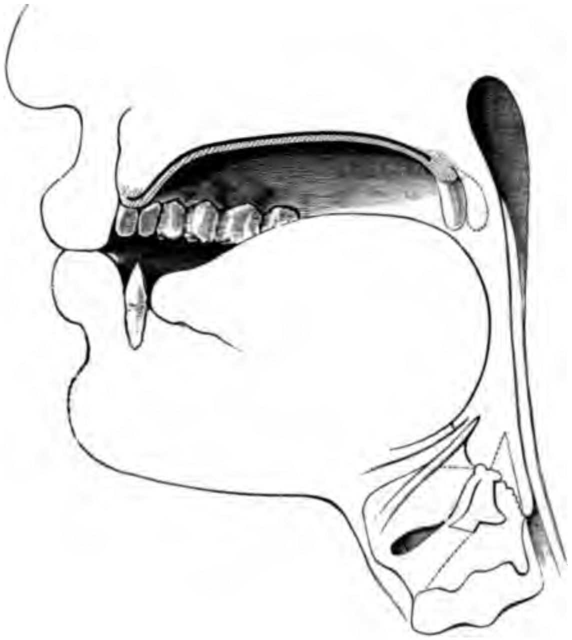
41. In pronouncing these dissyllables, the learner naturally drops into the habit of giving the first syllable a stronger accent than the

second. This should be permitted, but not pushed. It would be premature to make it a special subject of instruction, for it would affect the distinct pronunciation of the second syllable. When the phonetic value of each syllable has been thoroughly learned, accents can be better acquired.

Now in addition to the aspirates already learned, three other sounds are here introduced, because they may be called visible, or those in which the eye can see their organic adjustments. These are *m b* and *v*.

42. *m* is a nasal vowel, and formed by diverting the voice through the nostrils. This is done by closing the mouth, and then forcing it upwards till it escapes through the nostrils by the fall of the uvula. Fig. 3, *u*. The sound thus formed is different in timbre from that which passes through the mouth. It is more resonant, because the form and substance of the nostrils are more favourable to reverberation. Possibly

FIG. 9.



m, e.g. *map*. The dotted line indicates the dropping of the *velum pendulum*, to permit the sound to escape by the nose.

the first attempt of the learner will be successful, if he is made to feel, by placing a finger of one hand on the nose and the other hand on the throat, that the voice is the same as in the vowels already learned, only made to pass through the nostrils, as proved by the vibrations felt by the finger. Should he fail, then begin with a nasal aspirate, as in breathing freely when the mouth is closed. Now substitute voice for breath, holding all the mouth organs in the same positions, and *m* will follow. As soon as well-learned, unite it with the vowels already known, *ma*, *mo*, *mä*, *mu*. The transition from this nasal vowel to the mouth vowels is a good vocal exercise, and calls into play a small membrane called the *velum pendulum*, which drops down and allows the voice to sound freely through the cavities which connect the nose with the pharynx, fig. 9. Attempts will at first be made to pass the voice through both mouth and nose, like the French nasals, but this can be corrected by completely separating the sounds, pronouncing each, and then reducing the interval till they are united, but not confounded.

Reading.—The effort to pass the voice through the nose leads to an upward movement of the upper lip. The muscles *g*, *p*, *a*, *h*, *c*, *k* (fig. 5) are employed. This is only one instance of many in which muscular action not really needed in the production of a sound, as already alluded to, takes place either from sympathy or connection. The sides of the nostrils also are slightly affected by the vibration. These are the distinctive movements, and by closely attending to them, *m* will not be taken for *b*, which it much resembles in general adjustments.

43. *b* is a vocal stop, or an arrest put upon the voice similar in place and production to *p*, only the lips are not so tightly pressed together or contracted towards the teeth. On the contrary, they are pressed softly together and project a little. In *b* the voice is arrested on its initiation, not being permitted to escape. Owing to this, the learner is almost certain to substitute *m* at first. But he must be at once corrected by making its position final, as in *ab*, and pointing to the

retention of the sound, none escaping through the nose. If the finger is applied to the lips, a slight vibration is perceptible. Again, *b* and *p* are easily confounded, and to counteract this they must be alternately repeated till the learner can himself distinguish them. Generally, this is applicable to all closely allied sounds, either in place or phonetic value. Touch must be educated till it is able to detect the smallest variations.

Reading.—The muscular action of the lips, as already described in comparing *b* with *p*, is the best guide in reading. Their repetition reveals the organic differences. The less pressure, and the greater projection of the lips in *b* than in *p*, is very evident. Again, the action of *b* and *c* muscles in the cheeks (fig. 5) is more definite in *p* than in *b*, for in the former the breath is confined to a narrow aperture secured by this very pressure, while in *b* the voice issues through the whole width of the mouth.

The retention of the voice in the mouth and pharynx, as the breath in *p*, will not be overlooked, for it best aids the learner in perceiving and fixing the phonetic value of this stop.

Exercises.

pa ma ba fa tha ha po-mo bo-fo tho-ho

pä-mu bä-fu thä-fo hä-pu tho-ma hu-ma ha-ma
a-mo o-ba a-pu u-ma ä-fu pu-pa a-po
ma-po u-tha pu-pu fo-po bu-bo fo-ta to-mo

From these elements syllables, or words of three letters, can be easily formed. But before providing a set of exercises the preceding ones ought all to be inverted so that the aspirates and stops shall be final instead of initial in every syllable as :—

af ath ab am ap of oth ob om äf äth äb äm
uf uth ub um up fa-om thu-af of-up mu-om bu-oth

The union of three letters in one syllable is best learned by repeating the vowel, and thus forming two syllables of the three elements, as in *fam*, *fa- am* might be pronounced together, then one of the *a*'s dropped making *fam*.

fam	tham	bam	mam	ham	pam
fom	thom	bom	mom	hom	pom
fäm	thäm	bäm	mëm	häm	päm
fum	thum	bum	mum	hum	pum
fof	thof	bof	mof	hof	pof
fäp	thäp	bäp	mäp	häp	päp
fob	thob	bob	mob	hob	pob
futh	thuth	buth	muth	huth	puth
fa-math	fo-math	fä-math	fu-math	hu-thath	pu-fath
fām-ma	fām-bo	fām-pu	fām-tho	fām-hu	pam-bu
thum-bo	thum-fa	thum-bo	thum-pa	thum-ho	pom-po
bom-bo	thom-fo	mom-po	hom-fom	mo-pa	päm-ma
mäb-tha	thäf-ba	mäf-thä	häm-ma	bäf-fa	pum-fo

SEMI-VOWELS—v, th.

44. Two more sounds exhaust the visible class. These are *v* and *th* in *vow* and *that.* They are semi-vowels, properly speaking, for the voice is not arrested as in a stop, but flows on, as modified by the position of the organs.

v is almost the same as *f*, only voice takes the place of breath. The differences are in the part of the under lip pressed by the teeth, and the amount of the pressure. While *f* is formed near the edge of the red of the lip, *v* is formed more towards the highest part of it and the pressure is much less, for the voice requires as much resonance as possible to be heard, and so the lips are left free to vibrate. In this respect *v* and *b* are closely related. Their repetition alternately materially aids in their articulation. The learner should be made to feel the presence of the voice and the vibration of the lips in *v*, that he may be able to distinguish it from *f*, for he is most likely to confound them and vitiate his speech. Better also to secure a bold articulation of *v*, that its sonant value may be fully appreciated.

45. *t̸h̸* as in *that* bears the same relation to *th* in *think* as *v* does to *f*: the voice takes the place of the aspirate, but, as in *v*, it gives rise to a slight change in the adjustment of the organs and the degree of pressure. *Th* is formed by the edge of the tongue pressing against the edge of the upper teeth ; but *t̸h̸* has the tongue more advanced, and therefore the teeth press more on its substance. The pressure too is less, to permit the free vibration which the voice requires. The same suggestions about the articulation of *v* are applicable to *t̸h̸*. The learner ought to know the difference between it and its cognate, by frequent and well-directed repetitions of both. All defects can be easily corrected, if the proper place of the organs is attended to. The degree of pressure is most likely to be the source of failure, but this may be easily obviated by applying the forefinger of the learner's hand to the teeth of the teacher, so that he can feel for himself how little is required. Where touch can supply the insufficiencies of sight, it ought to be employed, for it is the sister substitute for the ear and almost as important.

Reading.—The muscles *m* and *b* (Fig. 5) are more in use in *v* than *f*, and the lower lip less contracted, for the lip muscle *a* is not so much required to shape it to the narrower aperture of *f*, because *v* is on the length of the lip to permit free vibration. A careful comparison of these sounds is all that is needed to prove that there is enough visible muscular action to distinguish them.

In *t̸h̸* there is also a different muscular action from that of *th*. The former fills a wider space in its formation, and therefore the muscles *m* and *b* are not required to press the cheeks close to the teeth, though acting towards the ear and reducing the passage as in *th*. And it is important to note that the jaw itself is more in action than in *th*, because the lower teeth press up the edges of the tongue. These distinctions seem too minute to merit attention, but nothing is so that is visibly expressed. The trained eye can detect them, and the mind interpret their meaning. The scientist can discover numberless differences, which are unseen by less practised eyes, and to the deaf it is as important that they should be able to read speech accurately as it is to him to discover new conditions of matter.

46. Twelve elements of speech have now passed under review, and before proceeding to the second or invisible class, it will be better to prepare the way by a set of appropriate exercises on them.

h	ham	hou	häp	hub	hav	hoth	häf	hutħ
f	fam	fou	fap	fub	fav	foth	faf	futh
th	tham	thou	thap	thub	thav	thoth	thaf	thuth
p	pam	pou	pap	pub	pav	poth	paf	puth
m	mam	mou	map	mub	mav	moth	maf	muth
b	bam	bou	bap	bub	bav	both	baf	buth
v	vam	vou	vap	vub	vav	voth	vaf	vuth
tħ	tham	thou	thap	thub	thav	thoth	thaf	thuth

These can be read from above or from either side. The former repeats the same terminal, and the latter the same initial consonant.

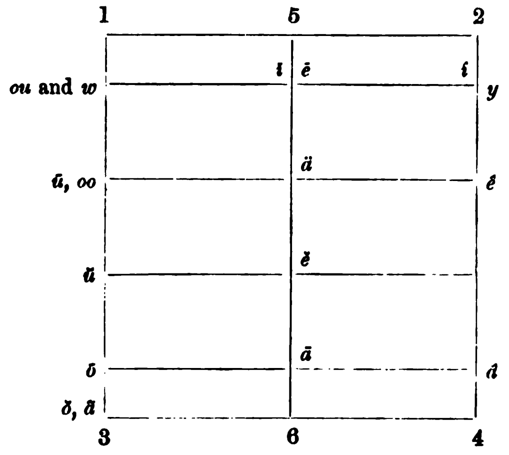
ha-ma	am-ha	hap-mo	hub-bä	ob-vu
fa-ma	am-fa	fap-mo	fub-fa	fob mu
tha-ma	ath-ma	thap-mo	thuf-tha	thom-vu
pa-ma	ap-ma	pap-mo	pub-ma	pom-vu
ma-ma	am-ma	map-mo	mub-ma	moth-pu
ba-ma	ab-ma	bap-mo	bub-ba	bop-hu
va-ma	av-ma	vap-mo	vub-va	vof-pu
tħa-ma	atħ-ma	tħap-mo	tħub-tha	ub-tħu

THE VOWELS.

47. Hitherto the exercises have been limited to four vowels, and these of the most marked description for combining with the visible consonants. But as in future all the consonants will be more or less concealed, the number of vowels must be increased, yet still in the order hitherto pursued of the greater ease in their production. Their classi-

fication is based on organic rather than phonetic relations. *One class* may be called graduated, because they are formed between the greatest space to which the lower jaw can be conveniently withdrawn from the upper and the palate, at fixed intervals, without any great variation in the general adjustment of the organs. The under jaw approaches nearer to the upper, and the tone is varied. *Another class* may be called *labial* or lip vowels, for they are formed on the lines of the graduated by various conformations of the lips. *A third class* are *palatal*, for they are formed by the tongue at different points of the palate. *A fourth class* are *guttural*, because formed by withdrawing the tongue towards the throat.

This diagram illustrates this classification, which is based on the graduated nature of the four simplest vowels, *a ĕ ä ē*.



Here 1 and 2 is the line of the palate ; 3 and 4 of the tongue and under jaw ; 5 and 6 the line of the graduated vowels, 1 and 3 of the labial vowels, and 2 and 4 of the guttural vowels. The following are the order and phonetic value of these vowels :—

1st class, graduated : *ā* as in *father* ; *ĕ* in *met* ; *ä* in *fate* ; *ē* in *me* ; *ĭ* in *pin.*

2nd class, labial: *ŏ* and *ã* in *pot* and *fall*; *ō* in *no*; *ŭ* in *tub*; *ū* or *oo* in *flute* or *book*; and *w* in *win*.

3rd class: palatal *w* and *ou*, as *bough*; *ĭ* in *pin*; *ē* in me; *î* in *rip*.

4th class: guttural *y* in *young*; *ê* in *red*; *â* in *pan*.

These shall now be considered in detail.

48. If the voice is like a musical instrument, then the vowels are the notes formed by the length and width of the tubular spaces through which it escapes. Now in pipes, length and capacity are the two elements which determine the pitch. The longer and wider, the deeper or lower the note. From the larynx to the lips is the length of the vocal pipes, and from the tongue to the palate and from cheek to cheek, the two diameters. But as the tongue and lips as well as the cheeks can be employed to reduce or enlarge the tubular space, a variety of tones and semitones can be produced. The sound of *ã* in *fall* is evidently several notes below *ē* in *me*, because the length and the width are different in both. Were the space in the mouth uniform in one direction and variable only in the other, few notes could be formed, but it can be increased or reduced in all directions, by shifting the tongue up and down, hollow or round, by expanding and contracting the cheeks, by protruding the lips, by withdrawing the under jaw behind or in advance of the line of the upper, or by combining the tongue and teeth, so that a great variety is possible, and these are the vowels and semi-vowels in whose combinations consist the music of speech and the practical means of preventing monotony. Some teachers on the Continent have attempted to teach the deaf to sing, and their method is based on these vocal variations and the power of contracting and expanding the larynx to raise or lower the voice. No doubt, something may be done in this way, but not so much to make the deaf songsters, as to give them a more perfect command of their vocal organs in speaking. The more the learner is brought to feel that he has control over his own larynx, the more will he be able to yield to the promptings of his emotions in giving vocal expression to them.

Strong emotions use the higher tones, tender and gentle the lower. In the absence of the regulating control of the ear, this is the direction in which teachers will find their best auxiliary in developing the voice of the deaf till, in softness and variety, it almost equals that of the hearing. The natural pitch is not at once arrived at, for the uneducated deaf usually make the most disagreeable sounds, and this has bred a false habit which must be corrected as speedily as possible. But the just medium between too high and too low, too thin and too deep, can only be reached by a right adjustment of the regulating organs, and a pure tone from the larynx. First attempts are therefore most important. Haste to arrive at results, without the careful use of preparatory means, is the greatest foe to progress. Right results are sure to follow if the conditions are right. The difference between an accomplished musician and a wretched scraper is not in the instrument but in the more accurate manipulation of the strings and production of tones. The teacher of the deaf has such an instrument under his hands, and he must operate with the skill and intelligence of a master, if he wishes to succeed.

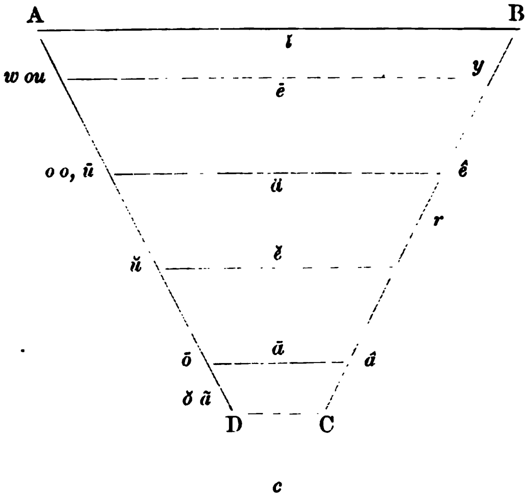
49. What has been already remarked of the use of the breath, is still more applicable to the voice. It ought to be thoroughly exercised in loud or low, long or short tones. But to do this the regulation of the supply of air in the chest is essential. There is evidently little difficulty about the supply of air in short vowels. A single impulse suffices ; on the contrary, a long vowel or a succession of long vowels requires a large supply and an economic use, as well as a rapid mode of repletion when it is exhausted. The teacher must therefore interpose and assist the learner to regulate both supply and expenditure. When there is a number of long vowels in immediate succession, most likely to exhaust the air in their production, so that, if the attempt is made to utter them all, the last are sure to be indistinct, suitable pauses should be introduced to permit the inflation of the lungs, but without any special effort. If a jug of water is procured, and the water poured

out quickly or slowly, all at once or in a gentle stream, the learner will have a good illustration of the way in which he must regulate his voice and the supply of air. Or again, as loud or low is a matter of greater or less force in propelling the air through the larynx, a ball laid on a level surface and struck with greater or less force will suggest the variations in the consumption of the air.

50. Again, on the production of the graduated vowels, the teacher will soon perceive the presence of another principle, that of horizontal as well as perpendicular distances. The one is almost the inverse of the other. The greater the recession of the under jaw from the upper, the narrower the diameter between the cheeks ; or in other words, the cheeks are drawn more and more out of their hollow form into straight lines. Thus the mouth is like a tube pressed into an ellipsis whose longest axis is perpendicular at the greatest extension of the under jaw, but horizontal when at its least, or close to the upper. All this affects the timbre of the tones, for in passing through the organs they are reverberated from many different points by the changes of form. Each vowel may therefore be distinguished from every other, not only by its tone, but also by the shifting of the organs in two directions ; and the teacher will avail himself of this in assisting the pupil to shape his cheeks and tongue to the respective vowels. The more he is guided by principles which he understands, the greater will be his command over his organs.

A triangle standing on its apex may assist to illustrate what has been said.

From D to A the greatest width between the open jaws. From A to B the greatest width laterally, when the jaws are closed. The other lines indicate the places of the graduated, guttural, and labial vowels : —



51. And in addition to this it ought to be remembered that vowels are rarely pronounced apart. They are either introduced or terminated by kindred tones, and this because the organs are not brought into position or released at once, but gradually, and because every vocal impulse tends to raise the tone at the beginning, and drop it at the end. The transitions too from vowels to consonants or the opposite, which are effected by rapid organic changes, frequently touching phases of other vowels, while the voice is still sustained, give rise to blended sounds which cannot be represented by any symbols. To attempt to teach them to the deaf would be disastrous. The subject ought to be avoided till the phonetic value of each principal vowel is well established, and then it will be seen how in their combinations with one another or with consonants, the half-tones and blended vowels are produced. Organic and vocal flexions cannot but arise when various sounds are conjoined. The vowels are as the fixed scale of the violin. Each note is distinguished from all the rest, but in bowing they blend into one another, and produce intermediate semi- and quarter-tones, as the colours mingle in the rainbow ; but no master pays the smallest attention to these minor distinctions till he has trained the ear of his pupil to the scale itself. And so must the deaf be trained in the

vowel sounds. These slides or inflexions are greater or less according to the space-relation of the organs. Sometimes they are so near, that a very little distance has to be passed over in the slide, as *i* in *in* ; but in others the distance is not only greater, but the muscular effort in re-adjusting the organs more difficult, and therefore the longer vocal slurs already referred to. Pronounce *full* slowly, and it will be perceived that in passing from *u* to *l* the voice becomes *e* before it escapes in *l*. Again, in *trump*, the voice in passing to *m* is at once arrested by the lips, where it ceases, and no time is left for intermediates. A few more illustrations of this sort will suffice to evince that the vowels as such are only the principal tones of the voice, and that there are many intermediate tones which have no names and need none, because they naturally arise out of combinations formed by these, or with consonants. Our first business is therefore with the vowels. Their more distinctive combinations will be found in the proper place. Let us follow the order of our diagram.

FIRST CLASS. GRADUATED VOWELS.

52. *ā*, the first vowel of this class, has been already described (35), *ĕ* in *met* is the second. It is formed by approaching the lower jaw a little nearer to the upper, but without any marked change in the relations of the organs, except that arising out of their greater proximity and the reduced tension of the cheeks. The tube is narrower above but wider laterally. The labial aperture is of course narrower, and the angles more withdrawn. As this vowel is an intermediate of *ā* and *ä*, it is at first difficult for the learner to divide the space at the right point. But as its short use is frequent, it will assist him to strike the right sound if united with some of the consonants he has already learned, as *hef*, *pef*, *veth*. Or let *ā* and *ä* be first pronounced, their places seen, and the jaw adjusted between them. The position of the tongue ought to be looked after.

Reading.—The width and shape of the labial aperture and the muscular action at the corners are the chief readable features of this vowel, but attention ought also to be directed to the decreased distance between the chin and the nose, for the graduated nature of these vowels is most helpful to distinguish them. When combined with other sounds, they give rise to organic shifts by which they are revealed, should there be any uncertainty about them apart.

The third of this class, *ä*, has been already learned.

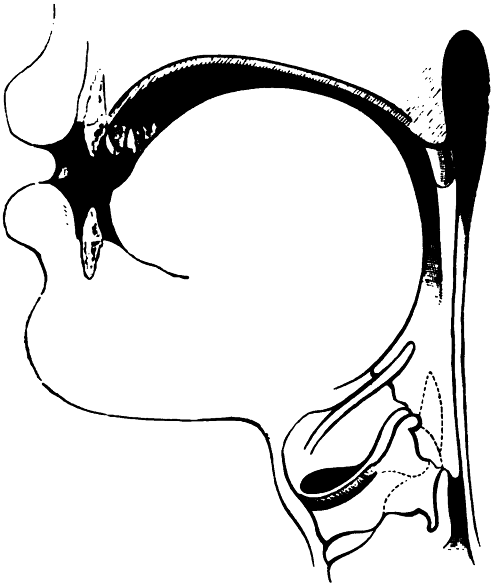
53. The fourth and the most difficult of the graduated vowels is *ē*, as in *me.* In this the jaws are approached as close together as the tongue, which interposes between the back molar teeth of both jaws, will permit. The tongue is pressed up into the arch of the hard palate. The pressure of the molars assists in this, for the tongue has its full width. The result is that a very small space is left for the voice to pass through between the tongue thus raised and the middle of the arch, giving it a thin, high tone.

Very few learners succeed at first in pronouncing this vowel. The organic adjustments are more complex than in the others, and assistance is needed to put them in possession of them. The diagram below is helpful, but another ought to be made with a couple of curved lines to suggest the form of the aperture.

No attempt ought to be made to raise the tongue with the fork of the spatel. Rather begin with the first of these graduated vowels and advance through each, indicating how the tongue gradually expands near the base, and *ē* may be produced. An exact model would be still better. Or, again, inflect from *ä* to *ē* places, and success may follow.

The mistakes into which learners fall in attempting to form this sound are numerous. Either the tongue is withdrawn to the soft palate, as its distance from the lower teeth will prove, or the tip instead of the middle is raised, or it is hollowed instead of being permitted to take the shape arising from its upward pressure. These are all best corrected by letting it be seen that the tongue retains its place behind the lower cutting teeth, while it spreads out freely behind. As outward muscular changes indicate organic movements, and the learner has already acquired some knowledge of their nature, an attentive observation of them in his teacher may secure right results when all other helps fail.

Fig. 10.



ē, e.g. *me.*

Reading.—The action of the lower jaw in this letter is marked. Though the tongue has great mobility in adapting itself to every place, it does not act alone. Other organs follow its movements. When it is withdrawn in guttural sounds, the lower jaw follows, as may be proved by noting the difference of space and position of the upper and lower teeth. The latter advance to the same line in dental aspirates and labial stops, or recede in gutturals. This has been overlooked by some, and so there are diagrams with the teeth in the same relation in all sounds. We avoid this, for it interferes with reading. The muscles most required are *m*, *b*, *c*, *d*, and *a* (Fig. 5), for the jaw and labial changes. The lips are nearer and closer drawn, and the cheeks pressed outwards from the spreading of the tongue. Some attraction of the lower lip by the tongue is apparent.

SECOND CLASS OF VOWELS. GRADUATED LABIALS.

54. The first of these, *ã* in *law*, or *ŏ* in *box*, is formed on the lines of *ȧ* in *father*, by lowering the lips as much as possible and shaping the under into a deep hollow, which with the upper makes an oval aperture. By first pronouncing *ā*, and then adjusting the lips, the right tone is secured ; but learners often fail from not lowering the under lip enough. Careful observation and direction are therefore necessary, with frequent repetitions and applications of the hand to the larynx till its phonetic value is felt. As the shape of the lips is visible, and the difference between this vowel and *ō* apparent, confounding them may be easily avoided. Secure a good *ã*, then clamp it, if the term is admissible, and get the lips into the right place.

Reading.—As the muscles *h*, *i*, *k*, and *a* are active in bringing the lips into their place, and *m* (Fig. 5) in the expansion of the cheek, the effects are very evident. This is one of the best-marked vowels, and it would be well to combine it, first with the other vowels, and then with the known consonants in an exercise. Its *ŏ* value will at once appear in words such as *fox*, *lock*. A number of such words ought to be selected and made into an exercise.

55. The *third* vowel of this class—the second *ō* has been already learned—is heard in *ū* or *oo*, or sometimes in *ŭ*, as in *flute*, *good*, and *to*.

The *ä* line is the base on which it is formed. Starting with it, the lips are freely projected without any great change in their relation. But, as in *ã* the under was the chief actor, so in *ū* it is the upper, rising towards the nose, while the lower projects a little beyond its line. There is no other vowel with which it can well be confounded. All it requires is a free projection of the lips on the *ä* lines. Better, therefore, to prolong the latter into the former as a dissyllable till its muscular action and phonetic value are fixed. Then separate them, for they are seldom united in composition, and pronounce them apart or in union with consonants.

Exercise.

ä-u ä-u ä-u ä-u ä-u ä-u

Reading.—The contraction of the cheeks by *m*, *c*, and *b*, and the projection of the lips by *a*, *h*, *i*, and *k* (Fig. 5), make this vowel distinctive. But its most marked feature is the close approach of the upper lip to the nose. Only one other vowel sound is nearer, *ou* or *ow*, and this is a diphthong.

Now, as it is hardly possible for the best readers to detect every sound in rapid speaking, those which are more marked become suggestive of others less so, either preceding or following, as symbols in some systems of stenography, between which much is left to be supplied by the reader, because he is familiar with the system. Better then for the learner to be very familiar with these sounds. Though the possible combinations of the alphabet are immense, yet their actual number in a language is limited, and in process of time they become so familiar that one suggests another from their association. But to arrive at this we must first be able to detect every sound. The study of the next class of vowels is postponed.

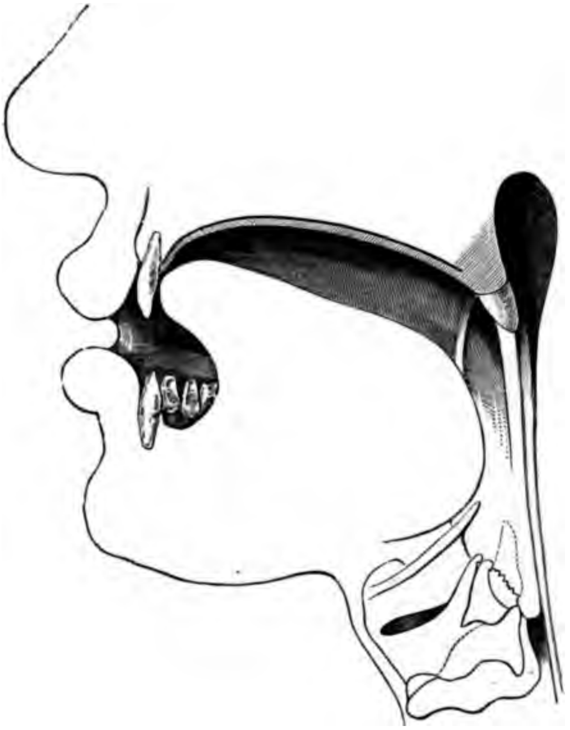
ASPIRATES—s, sh.

Three have been already learned, *h*, *f*, and *th*. Three more remain, *s*, *sh*, and *ch*, but as the last is a compound of *t* and a sound kindred to *sh*, it is reserved.

56. *s*. The general arrangement of the organs in this aspirate is that of *ä*; then the tip of the tongue is raised very near the gum and the inner side of the upper teeth, leaving only a little space for the

breath to find its way out, which gives it the sibilant or hissing sound by which it is known. The diagram illustrates this, and it ought to be noted that the breath, as in *f* and *th*, is confined to a narrow space and prevented from escaping elsewhere by applying the edge of the tongue to the teeth over the remainder of the gum on both sides ; or, in other words, the tongue, instead of being applied to the teeth all round, is drawn back and leaves a narrow opening for the breath to escape. The under jaw has also an auxiliary part to perform, for it presses up and sustains the tongue in its right position.

FIG. 11.



s, e.g. *sip*.

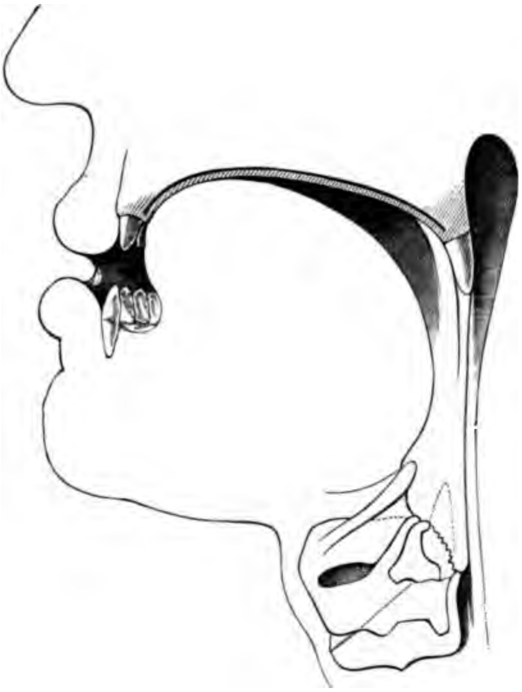
The principal failures in pronouncing this aspirate arise out of the place and smallness of the space through which the air has to pass. They are either too close an application of the tongue to the teeth or the gum, or, the very opposite, too wide a space is left, which allows the breath to escape without a sibilant. Or, again, the tongue is not sufficiently sustained by the under jaw, and the air escapes between them. These can all be obviated by directing attention to the place of the lower teeth behind the upper, indicating the raised position of the tongue, and then to the very narrow space left for the breath to pass through.

Reading.—As the lower teeth are brought into a straight line with the upper in *s*, the lower lip is somewhat projected, for the muscles *m*, *a*, *b*, and *c* (Fig. 5) are called into action to advance the under jaw so far. The under lip is somewhat contracted, in conformity with the narrow space through which the air has to pass and the close pressure of the cheeks against the teeth to prevent its escape.

57. *sh.* The tongue is the chief agent in forming this aspirate, but instead of the gum, the hard palate is the region. Into this the tongue is pressed by withdrawing it a little to increase its thickness, and it is brought so close, pressed so fully against the molar teeth of the upper jaw, and supported so firmly by those of the lower, as to confine the breath to the upper surface, along which it is forced, and spreads out in its escape like water released from a narrow channel into a wider. If the teacher applies his hand to his own mouth in pronouncing *sh*, he will find that the breath fills the entire space of the open lips. The diagram shows the place of the tongue on the palate, but fails in regard to the lower teeth. Should there be any great difficulty in placing the tongue, this may assist. Let ē be pronounced, or the tongue brought into its position. Represent it by the open hand on one side, and united fingers on the other; then raise them together. Their motion is like that of the tongue in rising to the palate. The hands, on account of their flexibility, are helpful to enable the learner to see the kind of action that is required; but a model with the exact shape of the tongue would be still more so. By holding the back of the hand near the mouth and moving it over the entire width, the dispersed rush of the breath will be felt.

Reading.—The difference between *s* and *sh* is small, and arises from withdrawing the tongue into its new position. The muscles *m*, *c*, and *d* (Fig. 5) are the chief agents. They draw back the angles of the lips. There is also a slight movement of *g* visible on the cheeks by the nose. The upward movement of the chin is perceptible. The lips, too, participate in the general movement, and *a* is slightly employed.

FIG. 12.



sh, e.g. *ship*.

All the aspirates except *ch* have now been described.

THE COMPOUND SHARP ASPIRATE ch.

This peculiar stop-aspirate begins with *t* pressed hard and then the tongue passes into the *sh* place, retaining the pressure so that the breath has to be forced out, which gives it the greater sharpness. This pressure spreads the tongue more fully on the palate. As *t* and *sh* are well known, their union after the analogy of the preceding letters is not a difficult achievement. Only the hands must be used to prevent the introduction of voice instead of breath. If such forms as *hitsh*, *witsh*, *watsh*, and *latsh*, which contain the same elements of sound as *ch* are used as final aspirates, only with an increased pressure, its acquisition will be facilitated.

Reading.—The greater pressure on the tongue with its compound action brings the cheek-muscles *m b c d* and the lip *a* (Fig. 5) into prominent expression. A close comparison of the three consonants just described, marking well their differentiæ, is a most useful exercise, for it trains the eye to that sharp scrutiny and discrimination which are essential to successful reading. Some provision is made for this in the

Exercises on the First and Second Classes of Vowels.

h	hā	hă	hŏp	hŭf	hĕf	hä	hū	hē
f	fa	fa	fom	fuv	fev	fa	fu	fe
v	va	va	vof	vuth	veth	va	vu	ve
th	tha	tha	thob	thup	thef	tha	thu	the
tħ	tha	tha	thof	thuf	them	tha	thu	the
p	pa	pa	pov	pum	pep	pa	pu	pe
b	ba	ba	bop	bub	bem	ba	bu	be
m	ma	ma	mom	muth	meb	ma	mu	me
ch	cha	cha	chop	chub	chef	cha	chu	che
h	hāf	hăp	hŏp	hŭp	hĕp	häp	hūp	hoop
f	faf	faf	fof	fuf	fef	faf	fuf	poof
v	vath	vath	voth	vuth	veth	vath	vuth	vooth
th	thav	thav	thov	thuv	thev	thav	thuv	thoov
tħ	thab	thab	thob	thub	theb	thab	thub	thoob
p	path	path	poth	puth	peth	path	puth	pooth
b	bam	bam	bom	bup	bem	bam	bum	boom
m	mab	matħ	moth	mub	meb	mab	mub	moob
ch	patch	match	voch	much	fetch	vech	buch	pooch

These exercises can be much enlarged either by beginning or ending with the same letter, as *haf*, *faf*, *vaf*, *thaf*, &c.

THE DIPHTHONGS—*ī*, *ou*, *oy*, or *oi*.

58. ī. As *ā* and *ē* have been already learned, and their rapid union forms the diphthong *ī*, its introduction here is in place. Such vowel combinations are called diphthongs ; but they are more, for in passing from the initiatory to the final vowel, all the intermediate vowels are really, though rapidly, combined into one. All that is necessary is to see that the principal vowels are fully pronounced apart, and then gradually advanced to their closest union. The defects of learners lie in the incomplete articulation of one or other or both. It is difficult to secure a full extension of the under jaw so as to begin at the right point. If the exercise is at first on this till it becomes a habit, and then on the *e* part, it will be easier to the learner, for having to think of both at the same moment may be distracting. As this is also the pronoun I, and frequently used, its early acquisition will anticipate the requirements of language.

Reading.—In addition to what has been already said of the special signs of *ā* and *ē*, it ought to be remarked that their rapid union in *ī* introduces a new and most helpful feature for reading, in the shifting of the organs from the one to the other. The rise of the under jaw would of itself be enough to suggest this vowel. The muscles called into action are *b*, *c*, and *m* (fig. 5), for in addition to the perpendicular action of the jaw, there is a lateral, to bring the tongue into its place for *ē*.

59. *ou*, or *ow*. This, like *ī*, is a diphthong. Starting with *â* in *fan*, it ends with a vowel kindred to *ū*, but somewhat modified from the initial muscular action. Its vocal elements are of the fourth and second classes, and each, as in *ī*, ought first to be distinctly pronounced, and then slowly combined, till the sonant value of both is fully procured. Afterwards a more rapid union can be acquired. But not too rapid, for in all such vowel combinations the intermediate

element is essential. The voice has to pass without pause through several notes, and the union of the whole in one vocal expression gives them their fulness and sweetness. Errors will arise from shifting the tongue, or not raising the lips to the *ū* place, but they can all be corrected by applying what has been already suggested. If *â* and *ū* have been mastered, as they ought to have been, before any attempt is made to form them into a diphthong, errors will be avoided.

Reading.—The under jaw is the chief agent in uniting the vowels of this diphthong. It has to move upwards and forwards. It ought to be noted that the last vowel is hardly *ō*, nor is it *ū*, but something intermediate. The lips are more fully projected but more apart than in *ū*. The muscles principally employed are *m*, *b*, *c*, and *a*, *i*, and *k* (fig. 5), and the whole action is large and distinctive, on account of the gradual projecting of the lips.

60. *oy* or *oi*, as in *boy*, is formed of *ã* and *ē* of the second and first classes. It therefore approximates to I, and must be taught like it by giving each element its phonetic value. All that has been said of these ought to be carefully attended to, and then it will be easy to unite them. But to fix it more fully it would be well to alternate it with *ī* till the tendency to confound them has passed away.

Reading.—The raising of the jaw from *ã* to *ē*, with the shape of the lips at the former and their lapse in passing to the latter, require considerable muscular action. The under jaw has to fall back while it rises, and *m*, *a*, *b*, *c*, *i* and *k* (fig. 5) take part in the movements, and furnish very distinctive signs for reading. As it terminates in *ē*, like *ī*, the variation is at the initiatory vowel, with which it ought to be contrasted by repeating both alternately.

61. *w*. As *w* initial is really a vowel formed on the *ã* basis, it will not be out of place here. It is initiated by a short *o*, and terminated by *u*, only the tongue is drawn back somewhat in the former, and the lips fully projected and brought still nearer to the nose, against which the upper presses in the latter. In fact, it is the extreme graduated

labial in this direction as *ă* is in the opposite. The withdrawal of the tongue leaves a larger space near the lips, which, together with the shape, has much to do in forming the peculiar sound of this compound vowel. When pronounced with *oo*, it is evident that it requires a smaller aperture, and therefore a slight change in its form is necessary before *oo* can be pronounced. Why it should be called a consonant, because the aperture is so small, is difficult to discover. It is voice passing freely out, but vibrating the lips by its action. When other vowels, as *a*, *i*, or *e*, follow, the lips fall back rapidly for the new adjustment, and the intermediate vowels are touched in the way.

Reading.—The lip muscle *a* is the chief actor here, but *m*, *b*, and *h* (fig. 5) take part in drawing the cheeks close, and providing for the larger demands made by the lips. The larger curvature of the upper lip will not escape notice, nor will the corners of the mouth.

These diphthongs when combined form a good exercise, as *ī̇*, *ou*, *oy*, *w*, *ou*, *ī̇*, *oy*, *w*, *oy*, *w*, *ī*, *ou* ; *w*, *y*, *ou*, *ī*, &c. In addition to these, *w* ought to be combined with other vowels, as *wă*, *wŏ*, *wā*, *wĕ*, *wä*, *wī*, *wē*.

Exercises on Vowels, Diphthongs, and Consonants.

ă	haf	hath	has	hash	hap	hav	ham	hath	hab
ŏ	fof	foth	fos	fosh	fop	fov	fom	foth	fob
ā	thaf	thath	thas	thash	thap	thav	tham	thath	thab
ū	suf	suth	sus	sush	sup	suv	sum	suth	sub
ō	shof	shoth	shos	shosh	shop	shov	shom	shoth	shob
ĕ	pef	peth	pes	pesh	pep	pev	pem	peth	peb
ä	baf	bath	bas	bash	bap	bav	bam	bath	bab
ŭ	muf	muth	mus	mush	mup	muv	mum	muth	mub
w	waf	wath	wis	wush	wep	wiv	wum	woth	wab
ē	vef	veth	ves	vesh	vep	vev	vem	veth	veb
ī	thif	thith	this	thish	thip	thin	thim	thith	thib
ou or *ow*	houf	fouth	thous	soush	shoup	pouv	boum	mouth	voub
oy or *oi*	hoy	foith	thois	soyth	shoip	poiv	boim	moyth	voib

This exercise can be used across as well as in the opposite direction.

In the former the vowel has the advantage of frequent repetition, in the latter the consonant.

62. No reference has hitherto been made to the practical use of these elements in naming objects, actions, and qualities, because it was assumed that the teacher would be only too happy to lead his pupil to understand the object he had in teaching him to speak. He should now feel he is getting possession of an instrument by which he can fix his thoughts, and express them to others. Spelling books will furnish the words if they do not at once recur to memory. These ought to be written out, repeated, or recalled by references to their objects and acts. We say acts, because these, as well as nouns and adjectives, ought to have a place. They can be easily repeated. No better book can be found for such uses than Messrs. Sonnenschein and Meiklejohn's 'English Method of Teaching to Read' in four courses, published by Macmillan. The graduated manner in which syllables and words are arranged in this work makes it a most useful auxiliary to the exercises in our work, for it supplies the details which would be out of place here.

BREATH OR ASPIRATE STOPS.

63. These are *p*, *t*, and *k*. They are named stops because they shut off or prevent the escape of the breath at certain places. The first, or *p*, which has been already learned, is the labial breath stop, for the lips arrest the air and prevent its escape. The second and third, *t* and *k*, are lingua-palatal, for they are formed by closing the orifice by applying the tongue to the gum and the hard palate.

t. If the tongue is first placed as if *s* were about to be pronounced, and then the tip is raised up to the gum to which it is very near (fig. 1) —elsewhere remaining in its normal position—and then pressed firmly against it, while the breath fills the vacant space between the tongue and the palate, and then the tongue quickly withdrawn, *t* is formed.

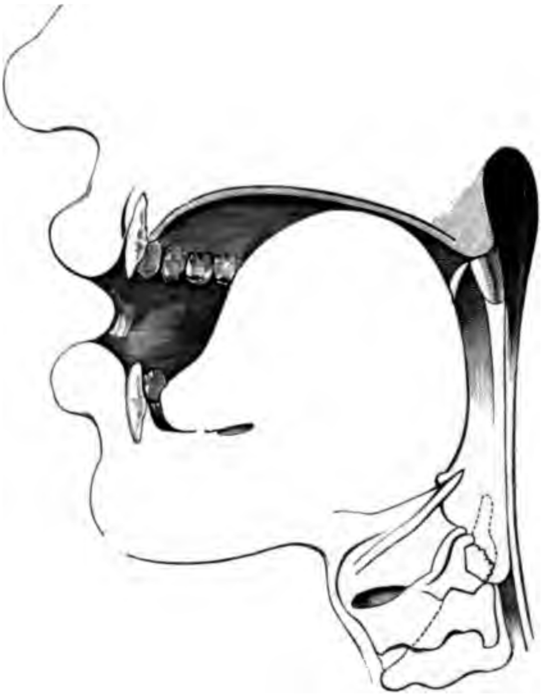
Learners err in applying the upper surface of the tongue, instead of the edge as in the diagram, and produce another sound deficient in the sharpness of *t*. Other nations have such a sound, but our alphabet knows nothing of it; care must therefore be taken to avoid it. If *p* is first pronounced, and then *t* immediately after, the sharp form of the first may suggest that of the second. As has been already observed, the breath and vocal stops differ as initials or terminals. In the former the explosive power is merged in the vocal, as in *pan*, not pronounced first *p* with an explosion of breath, but with the voice following immediately on the opening of the lips. A trained ear can detect something of the explosive, but to most it is non-existent. As a final the explosion is heard, as *p* in map. In the same way *t* and *k* differ as initials or finals. The vocal stops, as initial, at once blend with the vowel which follows : as *b* in *bam*, but as finals they become explosive after contributing their vocal force to the syllable, as in *mab*. Breath only is heard when the lips part. This holds equally true of *d* and *g*. But the reason seems to lie in the mechanical conditions of the organs. The voice must cease, else in such a word as *mab* another syllable would be formed. The explosion relieves it of this. (See *s* and *l*).

Reading.—The action of the tongue is the most distinctive mark of *t*. Its withdrawal from the gum is attended with a dropping of the whole, and consequently of the jaw. The lips too part a little more. The muscles most employed are *b* and *m*, which govern the jaw. (See fig. 5.)

64. *k* is the last of the breath stops. It may be called guttural, for it is formed on the hard palate near the uvula by the tongue. This is not by a withdrawal of it in its whole length, as some say, for its tip rests against the inside of the lower teeth, but from raising the body of it opposite its place on the palate till it presses firmly against it (fig. 1). The diagram illustrates this (fig. 13). The hand will also illustrate the motion of the tongue if it is laid flat on a table and then raised at the knuckles which are the point of contact. Breath must escape, as in *t* or *p*, and not voice. The greatest difficulty to

the learner is the new action of the tongue. Probably he knows nothing about it, and will attempt something quite different. But his attention must be brought back to the conditions, and the spatel or a mesh used to lead him to feel where the rise of the tongue takes place. A model of the tongue would be the best, but lacking this, open wide your mouth and let the learner look into it, and he will see the part of the palate against which it presses, and make a successful attempt to imitate you. But the action of the tongue, as in *t*, ought to be so clearly exhibited as to convey the idea of *k* being similarly explosive. Attempts, too, may be made to substitute voice for breath, or to expel it through the nose; all this must be arrested by reverting to the retention of the breath in the mouth and pharynx common to *p*, *t*, and *k*, and the hands of the learner brought to feel that breath only escapes.

FIG. 13.



k, e.g. *keep*.

Reading.—As the mouth is opened considerably, and the jaw drops or jerks, the rise of the tongue to the palate acts on the muscles *m* and *h* (fig. 5), and a slight movement of the angles of the lips is consequent These are sufficient to distinguish this stop from all others.

VOICE STOPS.—b, d, g.

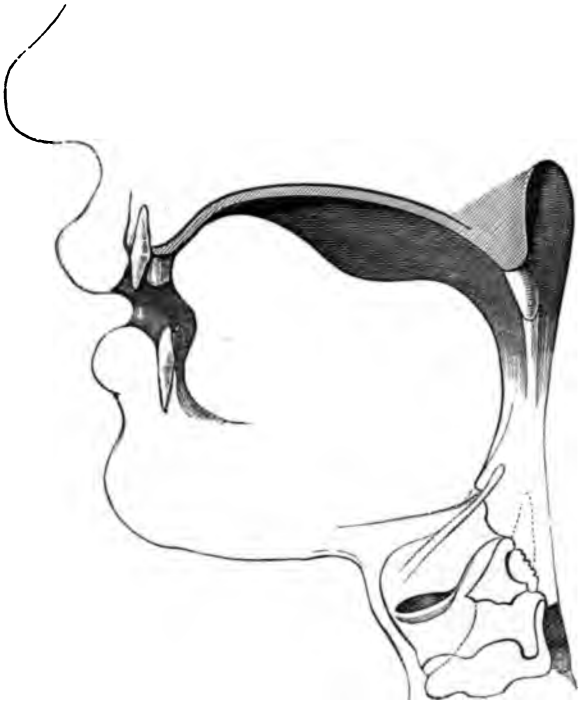
65. *b.* The voice stops are very closely allied to the aspirate, for they are formed by the same organic adjustments, with slight variations arising out of the nature of vocal, as distinguished from aspirate sounds. Voice is a stronger vibration, and communicates its effects to all it impinges against. As far as their nature will permit, they participate in it and carry it forward. This is what is felt in *b*, as distinguished from *p*. The former vibrates on the lips or palate, the latter does not, or at least to a limited degree. Hence, too, the organs do not press so tightly or sharply together, but join softly to permit free vibration, and yet arrest the voice. It might be said that the closing of the lips, followed by an attempt at vocalisation, is all that *b* requires, whereas *p*, as has been seen, must have a special action of the lips, and a sharp pressure. The hands of the learner, as well as his eyes, must be freely employed to put him in possession of these distinctions, else he will perpetually confound the breath stops with the vocal. Let him place one hand on the larynx and the other on the lips of the speaker, so that he may feel the attempt to vocalise and its effect on the lips. If he succeeds in imitating him, the way is prepared for succeeding with all the kindred sounds ; and this is the easiest, because the organs are visible. The attempt at vocalising, which this stop involves, may lead the learner to suppose that it is nasal, and he will pronounce *m* instead. This must be at once arrested by making him feel that the sound is absent from the nose. If *b* and *m* are alternated a few times, the difference will become evident to him. Attention ought also to be directed to the vibration of the lips rather than the larynx, and this will lead to the required attempt.

Reading.—What has been already said of the differences between *p* and *b* makes it evident that we must look to the lips to find *b*. Their action is a slight pressure in their normal position, and does not call into play the chin muscles *i* and *k* (fig. 5) to the same extent as *p*. In *p* there is also an evident contraction of the lips, but in *b*, none. But the danger does not lie so much in this direction as in that of *m*, for both are formed on organic adjustments so much alike externally, that it would seem at first sight hardly possible to distinguish them. In both the lips are closed without any special muscular pressure, and the nasal vowel is delivered with the same parting of the lips at its close as in the stop. How, then, can they be distinguished? By two marks. The passage of the voice through the nose causes its sides to vibrate slightly. That is one, but the smaller ; the upward movement of the upper lip, occasioned by the muscular action called into play by diverting the voice through the nose is the other. *b* requires no such muscular action. Hence the upper lip suffers only from the slight pressure required by it. A better exercise cannot be found than to pronounce these three sounds in every order till the learner can freely read and reproduce them.

66. *d.* If the tongue is placed softly on the *t* place, only a little flatter, and an attempt made to vocalise *d* will follow. It is strictly analogous to *b*, and, like it, will be confounded with its kindred stop unless great attention is paid to the conditions of its formation. But the mastery of *b* will be in place and suggest the right sound. Some learners do not keep the tongue and cheeks sufficiently close, and the voice escapes, or is expelled through the nose. All very well for the *n* which ought to be fixed and written, but not for the *d*. The hands must again be used, and for the same purpose as in *b*, till the right sound is learned.

Reading.—The difference between *t* and *d* is so very minute, that it might appear useless to attempt any description ; but nothing is useless which can be seen and learned, where all depends on close observation. Like *b* as compared with *p*, so is *d* distinguishable from *t*. The one is vocal and the other aspirate. The pressure exerted and the manner in which it is removed are therefore different. In *t* the tip of the tongue presses against the gum, in *d* rather the flat, and this in the latter gives rise to a difference of muscular action in its removal. These sounds never stand alone. They are always united with vowels or other consonants as initials or finals, and are therefore best read when so united. If a few exercises such as *to*, *do*, *ta*, *da*, *tu*, *du*, *te*, *de*, are used, it will be seen that in *t* the movement is more rapid than in *d*, while the form of the lips differs.

FIG. 14.

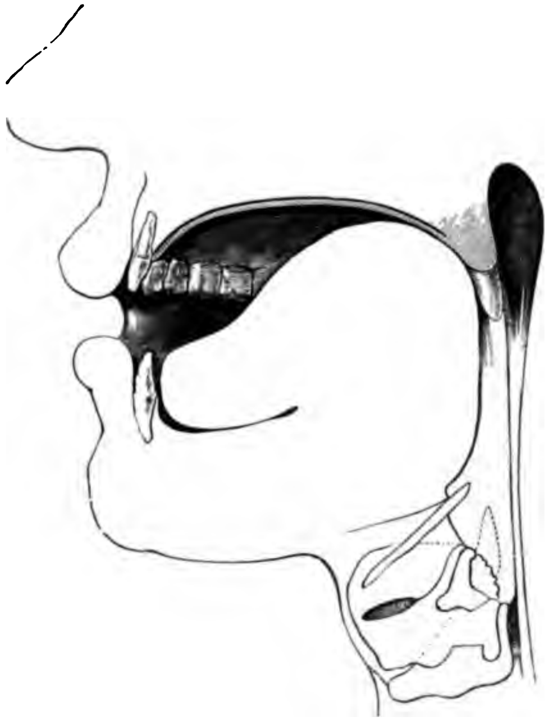


d, e.g. *do*.

67. *g*. This is the third and last stop of this order. Its place is nearly that of *k*, only the tongue is raised still nearer to the uvula on the soft palate, and so pressed that its vocal nature can be detected, like *b* and *d*. As the pressure is lighter against a softer substance, so the

tongue is not so sharply ridged, but flatter. A comparison of *p* with *b* illustrates the difference. The muscular action of the tongue is more towards its root. This can be suggested by a reference to the diagrams (figs. 1 and 16) where the part of the tongue and its place on the palate can be indicated. The hands ought also to be applied to enable the learner to distinguish *g* from *k*, its kindred aspirate stop. Sight fails here, but touch will supply its place, and the more it is exercised the clearer will be the utterances.

FIG. 15.



g, e.g. *go*.

Reading.—The lower position of the tongue on the palate, and consequent retreat of the lower jaw with the greater opening of the lips, are chief marks of this stop. The cheek-muscles *m* and *b* (fig. 5) are more required than in *k*. In addition to this *k* is attended by a sharp action in withdrawing the tongue, but *g* a slow.

Exercises on the Aspirate and Vocal Stops.

p	pã	pā	pä	pŏ	pū	pē	pī	ãp	āp	äp	ōp	ŭp	ēp	īp
t	ta	ta	ta	to	tu	te	ti	at	at	at	ot	ut	et	it
k	ka	ka	ka	ko	ku	ke	ki	ak	ak	ak	ok	uk	ek	ik
b	ba	pa	ba	bo	bu	be	bi	ab	ab	ab	ob	ub	eb	ib
d	da	da	da	do	du	de	di	ad	ad	ad	od	ud	ed	id
g	ga	ga	ga	go	gu	ge	gi	ag	ag	ag	og	ug	eg	ig

p	pãp	pāp	päp	pŏp	pŭp	pūp	pōp	pēp	pĕp	pīp
t	tab	tab	tab	tob	tub	tub	tob	teb	teb	tib
k	kag	kag	kag	kog	kug	kug	kog	kug	keg	kig
b	bad	bad	bad	bod	bud	bud	bod	bud	bed	bid
d	dat	dat	dat	dot	dut	dut	dot	dut	det	dit
g	gak	gak	gak	gok	guk	gup	gop	guk	gep	gim

NASAL VOWELS—m, n, ng.

These, as already described, are formed by diverting the voice through the nose. Their difference lies in the manner in which the voice is arrested. In the first, *m*, the lips arrest it ; in the second, *n*, the tongue in the *d* place ; in the third, *ng*, in the *g* place, and as they are all voice deflections, the pressure is similar to that of the voice stops in the same places, and aids in giving the resonance by which the nasal vowels are distinguished.

68. *n.* If *m* has been learned, *n* presents few difficulties. The tongue is placed as if *d* were about to be pronounced, and then the voice is passed through the nose. The learner will, perhaps, allow some of it to escape through the mouth, but he must be made sensible that this is not *n*. If he pronounces *b* and *m*, then he can be made aware that the difference between *d* and *n* is the same. As all errors arise in *n* from misplacing the tongue, it demands special attention. Master *d*, and *n* is secured. The difference is in dropping the *velum pendulum.*

Reading.—As *n* is a diversion of the voice through the nose, the effort is attended by the action of *g* and *p* muscles (fig. 5) which is visible on either side of the nose attended with a slight upward movement. Again, in *d* the removal of the tongue, which is more rapid and forcible than in *n*, leads to a better expressed opening of the lips. The pressure too of the tongue against the gum in *n* differs from *d*, because the voice is pressed more forcibly in the latter. The demand on *m*, *c*, *h* (fig. 5), is less in *n* than in *d*.

69. *ng*. If the tongue is brought to the *g* place, and the voice passes through the nose, *ng* is produced. The liabilities to error as in *n* chiefly lie in the *g* adjustment. Attempts are made to form it with the tongue in some other position, but all this will be prevented by leading the learner to place the tongue in its *g* position, and then make it manifest that the voice is permitted to pass through the nose instead of being retained. The effort necessary for this drops the *velum pendulum*, and the voice escapes. This nasal is never initial, but always final, and immediately follows a vowel, as *ang*, *ong*, *ung*, *ing*, *ĕng*. It would therefore be better to connect it at once with these vowels, and by frequent repetitions to familiarise the learner with it, for it is very much used in adjective and participial terminations. However, it ought to be observed that the *i* in *ing* is rather *e*, on account of its greater proximity.

Reading.—The effort to form this nasal is so great, that the muscular action is more marked than in *n*. The under jaw has to follow the movement of the tongue. Hence it is slightly withdrawn, and *b*, *m*, and *g* muscles (fig. 5) are brought into play, as may be seen on the cheeks. A vibration is also visible, as in *n*, by the nose. Nothing but the most careful noting of these differences will enable the learner to distinguish *ng* from *g*, and frequent exercises are necessary to accustom the eye to them. These are the practical difficulties of lip-reading, and have furnished something like a valid objection to it as a medium of intercourse, but it is forgotten by the objectors that these sounds generally stand in immediate association with others much more distinctive, and are therefore supplied by anticipation. Associated sounds are like associated words. Enough to hear the principal words of a sentence, to know what it means. Memory supplies, through the potent law of association, what the ear has not heard, and so, though the eye perceives only the more marked motions of speech, memory supplies what is lacking.

Exercises on the Nasal Vowels with kindred Stops.

m	mãb	māb	mŏb	mĕb	mäb	mōb	mŭb	moob	mīb	mēb
n	nag	nag	nog	neg	nag	nog	nug	noog	nig	neg
ng	dang	dang	dong	deng	dang	dong	dung	doong	ding	deng
b	ban	ban	bon	ben	ban	bon	bun	boon	bin	ben
d	dam	dam	dom	dem	dan	don	dun	doon	din	den
g	gad	gad	god	ged	gad	god	gud	good	gid	ged

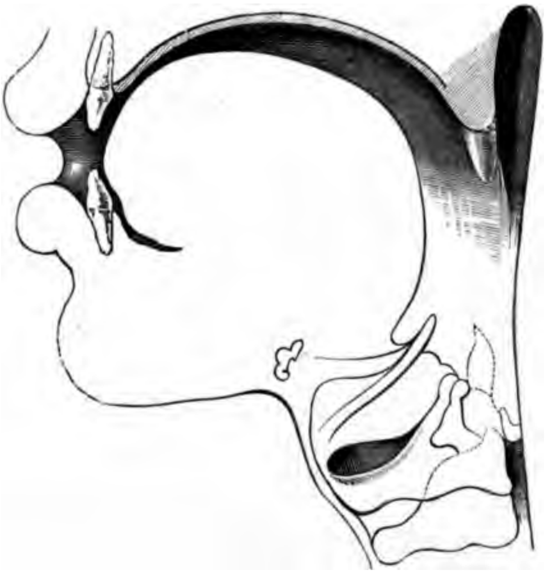
70. When the first syllable of a dissyllable, or any penultimate syllable, ends in a stop, and the next or final syllable begins with a vowel, the stop is carried on to the vowel: not repeated, as some say, but carried over, so that the explosive part is absorbed by the vowel. Consider such examples as *writ-ing*, *read-ing*, *walk-ing*, *eat-ing*, &c. Here the breath-stop is *t* in *writ*, and *i* is the vowel following. It is evident that the *i* is united with the *t*, and pronounced not *writ-ting*, but a more emphatic *t*, as wri*t*ing. Some teachers of the deaf, to avoid the apparent difficulty involved in such a stop, try to evade it by forming a syllable without the stop, and then join it on to the next, as *wri-ting*; but this is not English, and fails egregiously in indicating the nature of the accent when it falls on a long vowel or on a consonant after a short. But in most short syllables the stop is doubled, proving the strength of the final stop. No one, however, pronounces such words so that the first stop is treated as a final, but conjoins it with the next vowel, as *sitting*. The Italians would say *sit-ting*, separating the two *t*'s completely, but we do not follow them.

p	pãn	pān	pŏn	pĕn	pän	pōn	pŭn	poon	pīn	pēn
t	tam	tam	tom	tem	tam	tom	tum	toom	tim	tem
k	kang	kang	kong	keng	kang	kong	kung	koong	king	keng
b	bag	bag	bog	beg	bag	bog	bug	boog	big	ben
d	dat	dat	dot	det	dat	dot	dut	doot	dit	det
g	gad	gad	god	ged	gad	god	gud	good	gin	gen
m	map	map	mop	mep	map	mop	mup	moop	mip	mep
n	nab	nab	nob	neb	nab	nob	nub	noob	nip	nep

THIRD CLASS OF VOWELS—PALATAL.

71. **ĭ.** The graduated and labial vowels have all been described. We now proceed to the third class, called Palatal, because they are formed at different points between the tongue and the palate. They are *ĭ*, *ē*, *î*, and *y*. *E* has been already described, and will materially aid in getting a clear notion of *ĭ* as in *fin* and *pin*, in which the pure sound

Fig. 16.



i̊, e.g. ***pin.***

of *ĭ̇* short may be heard. Compared with *ē* in *me* there is an appreciable difference, in their formation, not in the length only, but in the tone, and not so much in the relation of the tongue to the palate as to the gum. If *ē* is formed, and the tip of the tongue brought closer to the gum almost in the place where *sh* is situated, *ĭ̇* is formed. It would be better not to push the use of this vowel till the learner has acquired a more thorough acquaintance with other sounds, for it results rather from certain organic conditions than from any radical difference between it and *ē*. The consonants that follow are formed at points in close proximity to *e*, and in order to pronounce them the tongue moves in their direction while *ē* is sounded, and thus the space for its emission is narrowed.

Reading.—This action of the tongue is responded to by the lips, which are drawn closer than in *e* and slightly raised.

Again, there is a second *î* which is formed nearer the soft palate rather than the gum, and is heard in *ring*, *rip*, &c. If the adjustments of the organs in the consonants which precede this vowel are carefully considered, it is very evident that it is formed on the palate in order to avoid the greater effort of moving the tongue into the *ĭ̇* place; either this or another vowel has been confounded with it. The learner will fall into it with little effort, if it is preceded by the consonants that shape it, and the syllable ends in a long vowel, or any except gum stops. But when it ends in any of these, then the *ĭ* is heard.

Reading.—The muscular action in this vowel is very similar to that in *ē*, but as it is usually a short vowel, it is differenced by the rapidity of the movements to the final consonant. It is marked *î* in our scheme.

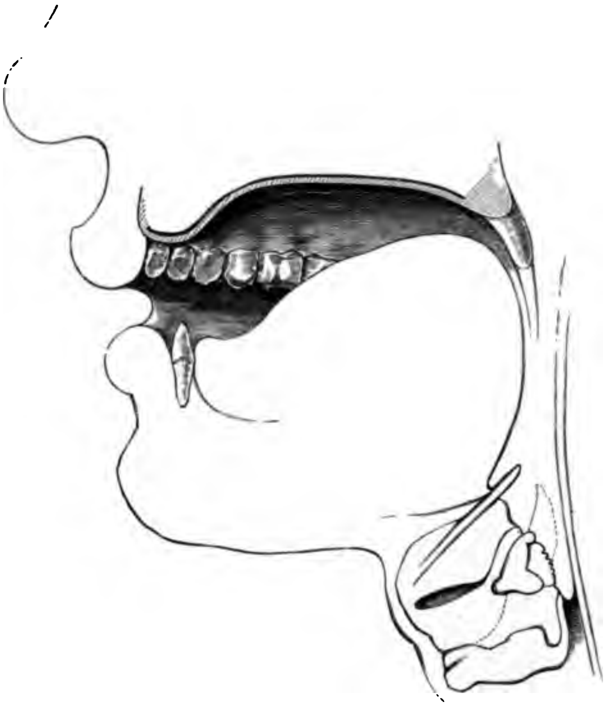
Exercises.

ling rip gip giv kill kick

72. *y*. This is the third palatal, and, like *ē*, the voice passes through

a narrow space between the tongue and palate, but much lower down on the soft palate than *g*, and close to the uvula. The learner is certain to fail on his first attempts to pronounce it, but if he is told to get his tongue into the *g* place without pressing the palate, and then let his voice escape, he will be in possession of the chief elements. He may also apply his fingers to the throat, close over the root of the tongue, in order to feel its action. Attempts will be made to substitute *g* or *k* for *y*, but they must all be put aside, and the learner made to perceive that

FIG. 17.



y, e.g. *you*.

it is only another modification of the voice as felt in all the graduated vowels. If he were to utter them in succession till he came to *ē*, and were then led to see that, instead of the hard palate, the tongue rose up towards the soft, as in the figure, and in consequence is withdrawn somewhat from the teeth, he might achieve it.

Y is always conjoined with vowels when initial, as *you ya yĕ yo yū*. As final it is simply *ē* or *ī*, as *boy*, *by*, and loses its guttural character.

Exercises on all these Vowels and Consonants.

h	hăt	hĕt	hät	hēt	hăt	hŏt	hŭt	hōt	hūt	howt	hī	hy
f	fath	feth	fäth	feth	fath	foth	futh	foth	fuwth	fowt	fī	fy
th	tham	them	tham	them	tham	thom	thum	thom	thuwm	thowt	thi	thy
t̶h̶	than	then	than	then	than	thon	thun	thon	thun	thown	thi	thy
s	sap	sep	sap	sep	sap	sop	sup	sop	sup	sowt	si	sy
sh	shaf	shef	shaf	shef	shaf	shof	shuf	shof	shuwf	showt	shi	shy
p	pang	peng	pang	peng	pang	pong	pung	pong	pung	powng	pi	py
t	tab	teb	tab	teb	tab	tob	tub	tob	tub	towb	ti	ty
k	kad	ked	kad	ked	kad	kod	kud	kod	kud	kowb	ki	ky
b	ban	ben	ban	ben	ban	bon	bun	bon	bun	bown	bi	by
d	dash	desh	dash	desh	dash	dosh	dush	dosh	dush	dowsh	di	dy
g	gat	get	gat	get	gat	got	gut	got	gut	gowt	gi	gy
m	mak	mek	mak	mek	mak	mok	muk	mok	muk	mowk	mī	my
n	nas	nes	nas	nes	nas	nos	nus	nos	nus	nows	ni	ny
ng	wang	weng	wang	weng	wang	wong	wung	wong	wung	wong	wing	wyng
w	wath	weth	wath	weth	wath	woth	wuth	with	wuth	wowth	wi	wy
y	yag	yeg	yag	yeg	yag	yog	yug	yog	yug	yow	yi	yy
q	quak	quek	quak	quek	quak	quok	qnk	quok	quik	quow	qui	quy

When *u* follows certain stops it takes a *y* as its initial, and ought to be written so till mastered, *dūke*, *lūke*, *mūk*, *nūk*, *tūb*, *gūb*, *kūb*, *pūk*, pronounced *dyuke* &c.

SOME SEMI-VOWELS—z, j, l, r.

It is difficult to classify these sounds. Two of them are buzzing, *j* and *z*, *l* is lingual, *r* is a trill, or rather two trills and a voice vibration.

73. *z*. If the tongue is adjusted to the *s* position, then pressed against the gum and the voice forced between them, *z* will follow. The buzz arises from the close contact of the tongue and gum, *v* resembles it, and may be well employed to suggest the right sound.

The finger of the learner applied to the lip in *v* enables him to feel the rapid vibration forming the buzzing. Errors arise from over or under pressure of the tongue against the gum. The proper measure can be learned by *v*.

74. *j*. This is a compound of *d* and *sh* vocalized. It is therefore formed by beginning with the *d* pressure, which is slightly relaxed to permit the voice to escape through the same space as *sh* aspirate. Practically, it is better to begin with the latter element, and having mastered it, to add the *d* as the initial. The failures in trying to produce this difficult semi-vowel arise chiefly from not letting the *d* pressure pass gently into the buzzing part. But if it is made evident that the explosive part of *d* gives place to the buzz, which is but *sh* vocalised, and the learner is able to achieve it, the difficulties vanish. It may be illustrated by joining two strips of paper at one of their edges, and parted by a small space. Then, if they are held at both ends with the finger and thumb at the points of junction, and the air forced through from the open side, the vibration caused by its passage resembles that of the organs in the passing of the voice between the tongue and the gum.

Reading.—Both these sounds are fairly marked on the lips and cheeks. The first, *z*, begins with the muscular action of *s* and then the vocal part causes a further movement of the lips, in which they approach more nearly while they are slightly contracted. The cheek muscles *b m* and *a* (fig. 5) draw back and up the angles of the lips. The *d* pressure of *j* has the same muscular action as this semi-vowel, and is then followed by a still more marked change of the lips and cheeks than in *z*. This is caused by the change of place in the tongue from *d* to *sh*, and the accompanying movement of the jaw while the lips slightly open and protrude. It should also be observed that the teeth change their relation. In *z* they stand in the same line, but in *j* the lower are withdrawn behind the upper.

Exercises on s, t, sh, z, and j.

s	săp	sĕp	sĭp	sŏp	sŭp	tăs	tĕs	tĭs	tŏs	tŭs
t	tam	tem	tim	tom	tum	sat	set	sit	sot	sut
sh	shan	shen	shin	shon	shun	wash	wesh	wish	wosh	wush
z	zas	zes	zis	zos	zus	saz	sez	siz	soz	suz
j	jaf	jef	jif	jof	juf	chaj	chej	chij	choj	chuj

75. From what has been revealed in the exposition and use of these consonants, it is most evident that there are two on whose thorough mastery all the others depend—*s* and *sh* for the tongue in both is in the most favourable position to pass to the semi-vowels, *z* and *j*, or the aspirate *ch*, which, apart from the stop of which it is partly composed, is only a strongly pressed *sh*.

In most plurals and possessives of our language the *s* termination becomes *z*, except when it is doubled. It may be to secure greater euphony or a more pleasing termination than that of the thin sibilant, but its effect, as our alphabet at present stands, is to compel the learner to substitute mentally a different sound. This is laborious to himself and troublesome to his teacher. Some nouns are therefore appended, to assist the learner to an early use of this literal untruth :

hands pens cōals man's fens jugs, &c.

But not all plurals are so pronounced. When the word has *p t* or *k* preceding, then *s* sibilant is used, because more akin to them. When semi-vowels or vocal stops are used, *z* takes the place of *s*, because it permits the voice to end the word.

Exercises—s after *p*, *t*, *k*, *d*, *g*, *&c.*

maps	taps	nets	pets	pots	blots	nuts	sots	locks	huts	books	sips
fibs	hobs	mobs	gods	sods	logs	mugs	tubs	bugs	figs	hogs	tugs

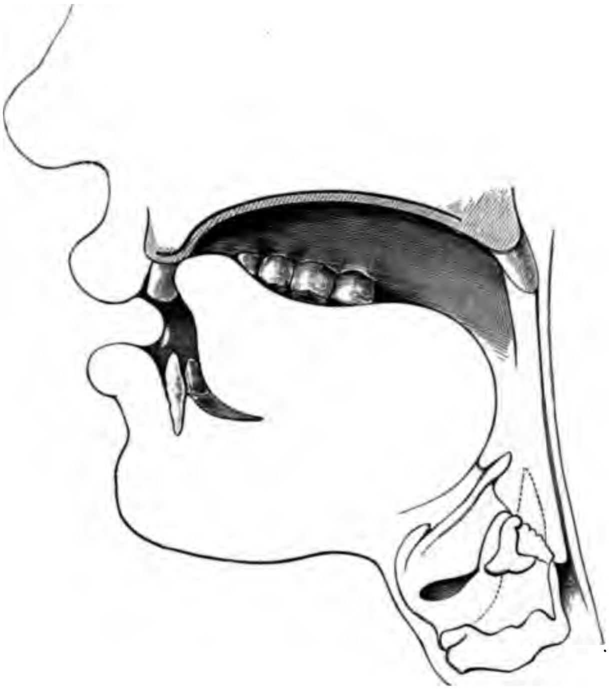
When *c* precedes *k*, it conforms to it, as *t* does to *ch*, *locks*, *rocks*. It is hardly necessary to notice that *x* is a compound, and must be treated as such ; as *box*=*boks*.

L and R.

These are semi-vowels, and formed by the tongue variously applied to the palate.

76. *l.* If the vowel *ä* in *ale* is first initiated and then, without any other change, the tip of the tongue raised to the *t* place and firmly stationed there, *l* will be the continuation of the vowel sound. This arrangement secures an open space which permits the escape of the voice between the lower teeth and the tongue. The tongue in *l* actually divides the voice into two streams which, impinging on its thin edges, produce almost a trill, or that tone which is peculiar to this vowel.

FIG. 18.



l, e.g. *lip.*

The lips are in their normal state. Sometimes teachers try to reduce the width of the tongue by various expedients, but this is unnecessary, besides very difficult. Its normal position within the under teeth, when the tip is raised to the gum, provides ample space for the escape of the voice. By making it a final first, its phonetic value will be best learned. Then it can be used as an initial.

Errors arise from attempting to pronounce it with the lips closed or the tongue in some other position. All these can be avoided by beginning at the lowest of the graduated vowels, as *ã*, and ascending to *ä*, as *ăl ōl ĕl āl ūl*, and making it evident that all attempts to pronounce it fail when the teeth meet, and that the gums must be free on either side to permit the escape of the voice on both sides of the tongue. The finger and thumb placed on either cheek opposite the points of exit aid the learner to figure to himself the right adjustments of the organs. Other errors arise from narrowing the tongue or rounding the lips too much.

Reading.—The action of the tongue and the voice in *l* produce a perceptible swelling and tremor of the cheeks near the vibrating points. In fact, the cheeks participate in this vibration, as touch can prove. The learner too can see by looking into the mouth how the tongue is stationed; but by itself this would not suffice, as in *t* the tongue's place is the same.

77. *r*. There are three in our language—the labial, the lingua-palatal, and the guttural. Its trill is the voice frequently interrupted by a vibrating organ. The labial *r* is so called not because it is purely lip-formed, but because together with the tongue the lips largely contribute to it. It is found only in syllables beginning with a labial stop, vocal or aspirate; because it obviates the organic effort of passing from such a stop to the lingual trill. The lips therefore initiate the trill which is taken up by the tongue. Not all English speakers employ this fine *r*, and some who do seem hardly aware of its existence.

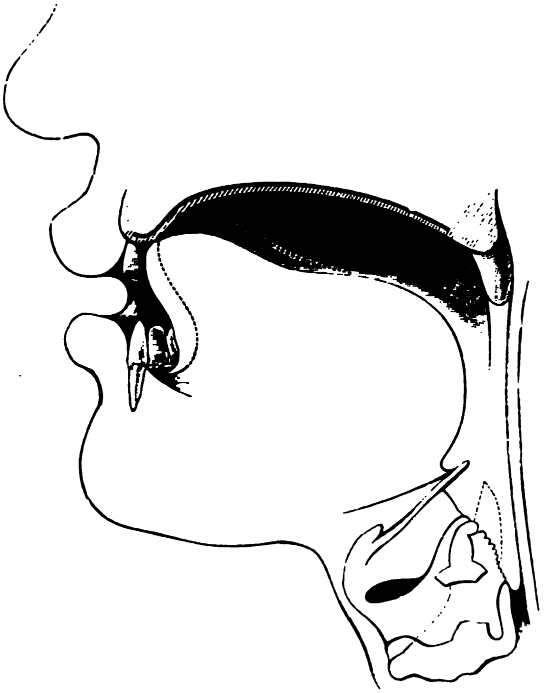
Examples.

pray	price	prove	prone	preach	prim	pruth
bray	brought	brow	brine	brute	breed	brittle
fray	from	fright	fruit	frost	fry	fro

are analogous.

78. This labial *r* is an appropriate preparation for the more purely lingual or trilling *r*, because it suggests the kind of vibration necessary to its production. Let us try to illustrate this vowel, so difficult to the deaf. First, let us use a little water and gargle it in the throat, so that the learner can feel its motion. Then let him do it for himself. Next take a piece of cardboard, cut out a space about the size and shape of the tongue, then take a piece of note-paper, which will fill the space. Hold this firmly at one end, so that the other may vibrate freely at the tip, and blow it till it suggests the manner in which the

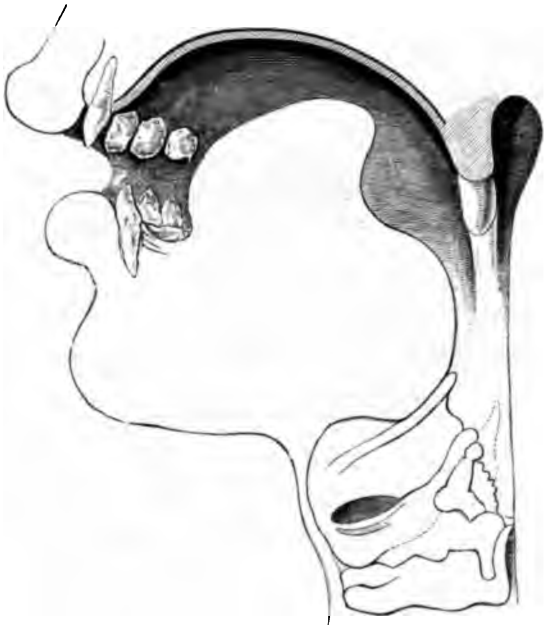
Fig. 20.



Trilling *r*, e.g. *roll.*

voice makes the tongue vibrate. The tongue of the Jews'-harp serves a similar purpose when vibrated. He will try to move the whole tongue, or the tip of it, but this is not what is wanted, for as it is acted upon solely by the voice, it is held firmly towards the soft palate to permit the free vibration of the tip. He may fail at first, then leave it till another time and repeat the attempt under the most favourable circumstances, for unless the learner co-operates earnestly with his teacher, the labour is lost. Both eye and touch can assist, and they ought to be fully employed. Once seized it will be remembered.

FIG. 20.



Guttural *r*, e.g. *round.*

79. The third *r* is guttural, but the tongue co-operates by falling back and exposing its root and the epiglottis to the action of the voice. I have long thought that the epiglottis has most to do with the burr of this semivowel. Most teachers of the deaf, especially in Germany, ignore it, but its absence in our language would be a great defect, for the trill would introduce a hard element where nature has provided one

soft and agreeable. In such words as *lord*, *harp*, *heart*, *wort*, the trill would be very harsh. There is really no more difficulty in acquiring it than the others. If the learner sees how the tongue is withdrawn, and feels the action in the throat, he will soon produce a fine guttural *r*.

Reading.—The vibration of the lips is the best index to the labial *r*. It can hardly be mistaken. The trill too leads to such an obtrusion and conformation of the lips as to be easily detected, and the guttural withdraws the chin, the angles of the lips, in which it excites a peculiar action.

Exercises on l and r.

l	făl	fŏl	fāl	fĕl	fäl	fōl	fūl	fīl	fĭl	feel	fŭl
r	ram	rom	râm	rem	ram	rom	rum	rim	rim	reem	rum
l	lap	lop	lap	lep	lap	lop	lup	lip	lip	leep	lup
r	bar	for	har	per	mar	nor	sul	fir	sir	meer	mur
êr	banner	wonder	ponder	render	timber	slipper	giver	whimper			
r	pride	bride	fred	thread	bread	tread	spread	brow			

FOURTH CLASS OF VOWELS.

These are more or less guttural in their formation, because they are in this locality and enlist the co-operation of the adjacent organs. They are *y ê r* and *â*, as heard in *young*, *earn*, *term*, and *cap*.

80. The first of these, *y*, which also belongs to the palatal vowels, has been already treated. The second or *ê*, as heard in *earn*, is a modification of *ĕ*, and probably owes its distinctive sound to the vowel or stop with which it is combined. In the typical instance it precedes *r* guttural, and, like most vowels, is modified for the organic ease or facility that is ever striven after. Pronounced as *ĕ*, the tongue would have to fall back rapidly to the *r* place, but this requires an effort, and instead, the *ê* is modified in accommodation to *r*. Hence the tongue is withdrawn from the teeth, widening the front aperture, and thickened towards the root, as seen in the diagram (fig. 20). But this is exaggerated.

Reading.—The withdrawal and thickening of the tongue brings *m* and *b* (fig. 5) into action, and the *r*, which follows, continues it till its completion, when the jaw drops. In such vowels as these, which are ever united in speech, it is preferable to treat them as one sound, and note the organic action accordingly, as a constant element.

81. *â*. This is the fourth and last of the guttural vowels, and probably owes its existence either to an inability or unwillingness to open the mouth to the full extent, or, as in *ê*, the consonant with which it is associated makes it organically easier to adjust the tongue to this new position preparatory to its pronunciation. It is best heard in such words as *admire*, *and*, *act*, *part*, when the tongue is withdrawn, as in *ê*, and presses on the epiglottis, giving it a deeper guttural tone with a slight vibration. The learner is at first likely to confound it with *ā*, but he will get at the right tone if the withdrawal and depression of the tongue towards its root is pointed out with the accompanying action of the jaw.

Reading.—This action of the jaw is performed by the muscles *m* and *b* with which the lips and chin are participants by *a* and *h* (fig. 5). If contrasted with *ā* in a suitable exercise, its special features are more apparent.

CONSONANT COMBINATIONS.

82. Hitherto, except in a few instances only, single consonants have been considered. These have been united with vowels into syllables and words, both as initials and finals; the next step therefore seems to be their union with one another as constantly recurring elements of speech. Moreover, their union is most helpful in reading, for they necessitate marked organic action, which the eye readily detects, in the transitions or slides between them. Their order is that of the letters of the alphabet, and a vowel will be associated with each pair to aid in throwing forward the vocal impulse, and so facilitating their union.

But the compound cannot be uttered if the elements are imperfect. They ought therefore to be at first pronounced distinctly and apart. The learner is almost certain to interpose a vowel in his attempts to unite them ; but this can be counteracted by bringing back attention to them as elements and then the full utterance of the vowel which follows. There is another expedient which nature has wrought out, where it is possible, and that is the organic anticipation of the next consonant while the first is being pronounced. Thus in *bla* the tongue is almost in the *l* place before the lips are parted. Where the combination is an aspirate and an aspirate stop, as *ski*, the voice has no place, and therefore the union is more direct; but when it is that of a semi-vowel or a nasal, it is more difficult. A vowel is certain to be interposed unless great care is taken in the enunciation of each and their quick conjunction.

Consonant Combinations.

bl	blã	blā	blä	blō	blū	blou	blī	blē	blĕd	blŏt	blĭs
br	bra	bra	bra	bro	bru	brou	brī	brē	bred	brock	brick
bw	bwa	bwa	bwa	bwo	bwu	bwou	bwi	bwe	bwed	bwot	bwis
(*k*) *cl*	cla	cla	cla	clo	clu	clou	cli	cle	clef	clot	click
(*k*) *cr*	cra	cra	cra	cro	cru	crou	cri	cre	crep	crop	crib
dr	dra	dra	dra	dro	dru	drou	dri	dre	dres	drop	drip
dw	dwa	dwa	dwa	dwo	dwu	dwou	dwi	dwe	dwell	dwot	dwin
fl	fla	fla	fla	flo	flu	flou	fli	fle	fled	flog	fling
fr	fra	fra	fra	fro	fru	frou	fri	fre	fred	frog	frill
gl	gla	gla	gla	glo	glu	glou	gli	gle	gled	gloss	glib
gr	gra	gra	gra	gro	gru	grou	gri	gre	gref	grot	grit
gw	gwa	gwa	gwa	gwo	gwu	gwou	gwi	gwe	gwen	gwol	gwis
kl	kla	kla	kla	klo	klu	klou	kli	kle	klef	klot	klip
kr	kra	kra	kra	kro	kru	krou	kri	kre	kreb	krot	kris
x=*ks*	ksa	ksa	ksa	kso	ksu	ksou	ksi	kse	kset	ksot	ksis
pl	pla	pla	pla	plo	plu	plou	pli	ple	pled	plot	plim
pr	pra	pra	pra	pro	pru	prou	pri	pre	press	prob	prim
sf	sfa	sfa	sfa	sfo	sfu	sfou	sfi	sfe	spher	sphor	sphir
sk	ska	ska	ska	sko	sku	skou	ski	ske	sketch	skot	skit

	skr	skrã	skrā	skrä	skrō	skrū	skrou	skrī	skrē	scrĕp	scrŏp	scrĭp
(*q*)	*skw*	skwa	skwa	skwa	skwo	skwu	skwou	skwi	skwe	squel	squot	squib
	sl	sla	sla	sla	slo	slu	slou	sli	sle	slek	slop	slip
	sm	sma	sma	sma	smo	smu	smou	smi	sme	smek	smok	smit
	sn	sna	sna	sna	sno	snu	snou	sni	sne	snep	snod	snip
	sp	spa	spa	spa	spo	spu	spou	spi	spe	sped	spot	spit
	spl	spla	spla	spla	splo	splu	splou	spli	sple	spled	splod	split
	spr	spra	spra	spra	spro	spru	sprou	spri	spre	spred	sprot	sprig
	squ	squa	squa	squa	squo	squu	squou	squi	sque	squep	squot	squip
	st	sta	stā	stä	stō	stu	stou	sti	stē	stem	stot	stip
	str	stra	stra	stra	stro	stru	strou	stri	strē	strep	strop	strip
	sw	swa	swa	swa	swo	swu	swou	swi	swe	swet	swon	swis
	shr	shra	shra	shra	shro	shru	shrou	shri	shre	shred	shrop	shrik
	tr	tra	tra	tra	tro	tru	trou	tri	tre	trep	trob	trig
	tw	twa	twa	twa	two	twu	twou	twi	twe	twef	twov	twin
	thr	thra	thra	thra	thro	thru	throu	thri	thre	thred	throt	thril
	thw	thwa	thwa	thwa	thwo	thwu	thwou	thwi	thwe	thwek	thwod	thwis

83. These are the majority of the initial consonant combinations, exclusive of those in which one only of the elements or an equivalent is pronounced, as *ph*, *ps*, and they form a valuable set of exercises for speaking and reading. Some of them require special notice. In *bl* the organic shift from *b* to *l* is hardly possible without introducing a vowel, unless while the *b* is articulated the tongue is brought into the *l* place, and the vowel which follows receives a strong emphasis. In *br* the first is almost in the *r* place, and little effort is required. In fact, the stop participates in the trill of the *r* and becomes one with it. The combination *bw* is not difficult, if *oi* is first pronounced and then *b* prefixed, for the closed lips in *b* readily conform to *w*. The shift from *c* or *k* to *l* is considerable, but as the first is an aspirate stop and the second a semi-vowel, it is not so difficult as *gl*, which are both vocal, and between which many who hear interpose a short vowel. In the former, if the aspirate explosion is sustained till the voice is heard only in *l*, their union will be better effected; and in the latter a momentary pause between them will exclude the vowel and suggest

the correct sound. Now *br*, *cr* or *kr* are in such close proximity that the first freely gives place to the second, but in *gw* the combination is between sounds at opposite points, *g* guttural and *w* labial. However, the same organic expedient as in *b*, *l*, is adopted to meet the difficulty—while *g* is being articulated, the lips are shaped for *w* and the voice escapes in the right vowel.

84. These remarks are sufficiently numerous to reveal the existence of two classes of combinations. The first, those in which the elements are intimately related in place, and secondly, those in which they are apart, and therefore require some organic expedient to facilitate their union. The first class is soon acquired, but the second is formidable to the deaf, for they are ever prone to introduce a vowel from the absence of the correcting control of the ear and the greater organic facility attendant on hearing. Nothing will overcome this but a distinct perception by touch of the difference between the correct and the incorrect, as well as many exercises on the former.

Final Combinations of Consonants.

—*bl*	ãbl	ābl	äbl	ōbl	ūbl	ēbl	oubl	i̊bl
—*cl*	acl	acl	acl	ocl	ûcl	ecl	oucl	îcl
—*cr*	acr	acr	acr	ocr	ucr	ecr	oucr	icr
—*dr*	adr	adr	adr	odr	udr	edr	oudr	idr
—*dz*	adz	adz	adz	odz	udz	edz	oudz	idz
—*fl*	afl	afl	afl	ofl	ufl	efl	oufl	ifl
—*ft*	aft	aft	aft	oft	uft	eft	ouft	ift
—*fs*	afs	afs	afs	ofs	ufs	efs	oufs	ifs
—*fts*	afts	afts	afts	ofts	ufts	efts	oufts	ifts
—*fth*	afth	afth	afth	ofth	ufth	efth	oufth	ifth
—*kl*	akl	akl	akl	okl	ukl	ekl	oukl	ikl
x=*ks*	aks	aks	aks	oks	uks	eks	ouks	iks
—*kt*	akt	akt	akt	okt	ukt	ekt	oukt	ikt
xth=*ksth*	acksth	acksth		ocksth	ucksth	ecksth	oucksth	icksth
xths=*ksths*	acksths	acksths		oksths	ucksths	ecksths	oucksths	icksths
—*kts*	ackts	akts	akts	okts	ukts	ekts	oukts	ikts

—lb	ãlb	ālb	älb	ōlb	ūlb	ēlb	oulb	i̊lb
—ld	ald	ald	ald	old	uld	eld	ould	ild
—lf	alf	alf	alf	olf	ulf	elf	oulf	ilf
—lfth	afth	afth	afth	ofth	ufth	efth	oufth	ifth
lj—lg	alg	alg	alg	olg	ulg	elg	oulg	ilg
—lk	alk	alk	alk	olk	ulk	elk	oulk	ilk
—lm	alm	alm	alm	olm	ulm	elm	oulm	ilm
—ln	aln	aln	aln	oln	uln	eln	ouln	iln
—lp	alp	alp	alp	olp	ulp	elp	oulp	ilp
—ls	als	als	als	ols	uls	els	ouls	ils
—lt	alt	alt	alt	olt	ult	elt	oult	ilt
—lth	alth	alth	alth	olth	ulth	elth	oulth	ilth
—lv	alv	alv	alv	olv	ulv	elv	oulv	ilv
—md	amd	amd	amd	omd	umd	emd	oumd	imd
—mf	amf	amf	amf	omf	umf	emf	oumf	imf
—mp	amp	amp	amp	omp	ump	emp	oump	imp
—mpl	ampl	ampl	ampl	ompl	umpl	empl	oumpl	impl
—mpt	ampt	ampt	ampt	ompt	umpt	empt	oumpt	impt
—mt	amt	amt	amt	omt	umt	emt	oumt	imt
—nch	anch	anch	anch	onch	unch	ench	ounch	inch
—nd	and	and	and	ond	und	end	ound	ind
—ndth	andth	andth	andth	ondth	undth	endth	oundth	indth
z—ngs	angz	angz	angz	ongz	ungz	engz	oungz	ingz
—ns	ans	ans	ans	ons	uns	ens	ouns	ins
—nt	ant	ant	ant	ont	unt	ent	ount	int
—nth	anth	anth	anth	onth	unth	enth	ounth	inth
—ngk	angk	angk	angk	ongk	ungk	engk	oungk	ingk
—ngth	angth	angth	angth	ongth	ungth	ength	oungth	ingth
—ps	aps	aps	aps	ops	ups	eps	oups	ips
—pt	apt	apt	apt	opt	upt	ept	oupt	ipt
—pth	apth	apth	apth	opth	upth	epth	oupth	ipth
—rb	arb	arb	arb	orb	urb	erb	ourb	irb
—rd	ard	ard	ard	ord	urd	erd	ourd	ird
—rch	arch	arch	arch	orch	urch	erch	ourch	irch
—rf	arf	arf	arf	orf	urf	erf	ourf	irf
—rg	arg	arg	arg	org	urg	erg	ourg	irg
—rk	ark	ark	ark	ork	urk	erk	ourk	irk
—rl	arl	arl	arl	orl	url	erl	ourl	irl
—rm	arm	arm	arm	orm	urm	erm	ourm	irm

—*rn*	ā̃rn	ārn	ärn	ōrn	ūrn	ērn	ourn	i̊rn
—*rnt*	arnt	arnt	arnt	ornt	urnt	ernt	ournt	irnt
—*rp*	arp	arp	arp	orp	urp	erp	ourp	irp
—*rs*	ars	ars	ars	ors	urs	ers	ours	irs
—*rst*	arst	arst	arst	orst	urst	erst	ourst	irst
—*rt*	art	art	art	ort	urt	ert	ourt	irt
—*rth*	arth	arth	arth	orth	urth	erth	ourth	irth
—*rv*	arv	arv	arv	orv	urv	erv	ourv	irv
—*sk*	ask	ask	ask	osk	usk	esk	ousk	isk
—*sp*	asp	asp	asp	osp	usp	esp	ousp	isp
—*st*	ast	ast	ast	ost	ust	est	oust	ist
—*sht*	asht	asht	asht	osht	usht	esht	ousht	isht
—*tth*	atth	atth	atth	otth	utth	etth	outth	itth

85. *Reading.*—These consonant combinations form a copious set of exercises in elementary speech. They are syllables, and bring together the elements most frequently found in the composition of words. The eye of the learner ought therefore to be made very familiar with their apparent muscular changes, for it is manifestly in them rather than in the sounds of which they are composed, that we are to look for the most marked expression. 'Syllables and not letters,' says F. Schegel, 'form the basis of language. They are its living roots, or chief stem and trunk, out of which all else shoots and grows. The letters, in fact, have no existence, except as the results of a minute analysis; for many of them are difficult, if not impossible, to pronounce. Syllables, on the contrary, more or less simple, or the complex composites of fewer or more letters, are the primary and original data of language. For the synthetical is in every case anterior to the elements into which it admits of resolution. The letters, therefore, first arise out of the chemical decomposition of the syllables.' But it was first required to ascertain the phonetic value of each element: as the letters of the alphabet, or their phonetic value, must first be learned by one who hears in order to read, so their organic expression has been taught to the deaf, that the syllables of which they are composed may be made the basis of speech-reading. Our exercises

have been framed with a view to this, and consonant combinations are only a fuller development of the principle.

Again, these combinations, as initials and finals, can themselves be combined by interposing a vowel, or by uniting each initial combination with the syllabic terminations in the above exercises, as *bla-bl*, *bla-cl*, &c., and thus furnish many thousands of examples for the better development of speaking and reading.

86. Professor Melville Bell has devised a set of key-words to English speech-sounds and their relations, the 'English Alphabet of Visible Speech,' which I here give, as furnished by J. Ellis, Esq., F.R.S., in his criticism on them, published in the fourth part of his 'Illustrations of the Pronunciation of English.' (Early English Text Society.)

1. One
2. Two
3. Three
4. Four
5. Five
6. Six
7. Seven
8. Eight
9. Book
10. Watch
11. Saw
12. Feathers
13. Tongs
14. Whip
15. Lamp
16. Onions
17. Boat
18. Cart
19. Tent
20. Houses
21. Dog
22. Monkey
23. Cage
24. And
25. Bird
26. Canary

They are a good test exercise for those who have studied what has been already provided.

87. There is another use to which our consonant combinations can be applied, preparatory to exercises on accent and tone. They may be read as a voice gamut, and develop a feeling of higher and lower in tones by variations in their vibrations. They are constructed also as an ascending scale, so that the voice begins at the lowest tone and ascends to the highest, from *ă* to *ĭ*, or as a descending scale from *ĭ* to *ă*. If the pupil's finger is applied to the larynx, and each syllable pronounced deliberately, he will soon perceive an increasing difference in the vibrations. Repeat the process a few times, and then see how it is imitated. Very probably you will find, to your great joy, that the idea has been caught by him in a rude but successful attempt to produce a similar

variety of tones. This is a good beginning, and proves that perseverance is all that is needed to secure enough of the music of speech to make his voice agreeable.

VOWEL COMBINATIONS.

88. These combinations are of three classes. First, those in which the vowels contribute to the formation of a compound in which each is heard, as *oi*, *ou* ; or, second, those in which one absorbs the others, it may be the stronger, as *w* and *ie* in *view* ; or, third, those in which each vowel has distinct utterance or forms a syllable, as in ple-o-nasm, *i-o-dine*. This is a wide field, and very attractive in the education of the voice, for such combinations afford the best opportunities for diversifying its tones and drawing out its full compass. All that can be done here is to direct the teacher's attention to them. A list might readily be made, but this will be done better as they occur in reading or in lessons.

Reading.—These vowel combinations, especially the third class, are similar to the consonant for reading purposes, because they require corresponding muscular action, as *eolian*, in which the muscles which are employed in *e* have suddenly to give place to a forward action to the *o* place. This is very apparent, while it assists in better determining both vowels.

A number of exercises of this sort might be constructed which would combine all the classes in our arrangement.

Second class of diphthongs.

ue = ē in queen
ai = ä in pain
ai = â in airy
au = ā in laugh
au = ã in sought

aw = ã in law
ea = ê in peasant
ei = { ä in eighth
ī in eider }

eo = ē in people
eu = ū in feud
oa = ō in boat
ou = ŭ in rough
ou = ow in plough
ou = o in trough
ua = ā in guard
ua = wa in guano
ue = ū in due
ui = i in build

89. In addition to these there are a few triphthongs, as *eau* in *beauty*, pronounced *byeute* ; *you* in *you*, where each vowel has its own sound, only the *o* becomes *e*, by the tongue rising from the *y* position towards the *u*, which it does slowly ; *uoy* in *buoy* is pronounced *bwoi* ; *io* in *onion* is peculiar, as the nasal does not permit the free initiation of the *i* in the same place ; *y* takes its place, and the pronunciation is *onyon*.

Third class. These belong rather to distinct syllables than vowel combinations, and therefore each vowel retains its own sound, as *oe* in *poet*, *eo* in *eolian*.

All the elements of speech have now received a detailed treatment, and in the review it is very manifest that some are principal and others only modifications—some in which the organic adjustments are well defined and easily discerned, while the rest are variants arising from minute changes of form, voice, or breath. Practically, we therefore arrive at the same results as the philologists, who tell us with Fred. von Schlegel in his Lectures on the Philosophy of Language, 'It forms no easy problem to indicate most of these'—the elements of speech—'by our European characters ; and to pronounce them requires the organs of speech to be more than ordinarily flexible. On the other hand, profound and philosophical inquirers into language, by rejecting all mere modifications of harshness and softness in the same sound, and whatever is manifestly a mere variation of the same letter, or a mere compound of simpler tones, have reduced the whole alphabet to ten primary elements.'

The three primary vowels, according to Bopp and Grimm, are *a*, *i* (*e*) *u*.
The three consonants given by Schlegel, *p*, *t*, *k*, or *b*, *d*, *g*, mediates.

Three liquids, *l*, *n*, *r*.
One sibilant, *s*.

But this arrangement is incomplete, and would be of little use in teaching speech. In this *place* rather than sound has to be considered. Correct organic adjustments, without which voice must ever be indistinct, must have precedence. Once get the organs in their right place, and breath or voice will receive the right tone in passage or arrest. Looking then to this as our guide in classifying the primary elements of speech, the following arrangement is more practical.

Reverting to our diagram of the vowels, and what was said about their arrangement, we would start with *a ä ē* as the primary vowels. Then divide the consonants into two classes according to organic relations.

$$\left.\begin{array}{r}\text{First Class, } p,\ t,\ k\left\{\begin{array}{l} p\ t\ k\\ b\ d\ g\\ m\ n\ ng\\ \ r\ r\ r\\ \quad l\end{array}\right. \\ \text{Second Class, } h,\ f,\ th,\ s,\ sh\left\{\begin{array}{l} f\ th\ s\ sh\\ v\ t\hbar\ z\ j\end{array}\right.\end{array}\right\} \begin{array}{l} ch=t\ sh\\ j=d\ sh\text{ vocalised}\\ x=ks\end{array}$$

As *ch*, *j*, and *x* are compounds of both classes, they are bracketed with them.

Now if these eleven fundamental sounds were thoroughly learned, all the others which are only modifications of them would be less difficult. Some teachers of the deaf, influenced by this consideration, more than by the principles by which we have been guided, make them the basis of their system, and construct all their exercises in accordance. But if the visible is to prepare for the invisible, the simple for the complex—or the ease and comfort of the learner are to be considered rather than system, then the order we have followed is the better. However, should any teacher think otherwise, the exercises already provided, with a few alterations, will be found suitable. But let us not forget that our duty as teachers is not only to teach our pupils to speak and read well ;

but to do this in the manner least laborious and most pleasant to their feelings. System or method must be subordinated to these ends, for 'the life is more than meat and the body than raiment,' or, as Hill says, 'Method and programme should not rule instruction, but be ruled by it.' A slavish devotion to method has cost the deaf and dumb more than we wish to say, and therefore, let us do our utmost to make their education more and more what nature would have made it, could they have heard,—a pleasant introduction to the wonders of creation and the riches of divine and human knowledge.

SOME PECULIARITIES OF PRONUNCIATION.

90. As we have not enough symbols in our alphabet for all the sounds in the language, one has sometimes to do the service of two, or two the service of one. This causes many mistakes, till the memory of the learner and not his eyes supplies the right sound. Let us note some of these peculiarities, and see if some reason can be assigned for them.

S is our plural termination for most nouns. Now in some it is the aspirate *s* and in others *z*. But if it is carefully considered, it will be found that *s* is aspirate after an aspirate or aspirate stop; but *z* after a vowel, semivowel, or vocal stop; or the terminal consonant is attracted by the vowel sound and assimilated :—*seat seats*, *stone stonez*, *whip whips*, *pen penz*, *chair chairz*, *book books*, *ball ballz*, *wife wivez*.

C does double service, though *k* might take its place whenever it is hard. The rule is, *c* is *s* before *e* and *i*, as sceptre, cell; and *k* before *a*, *o*, and *u*, as cab, cot, cup. But this is not invariable; *g* too is soft, or *j*, before *e* and *i*, as gentle, gin—though in *give* it is hard; and hard before *a*, *o*, and *u*, as gas, go, gum; *x* is *ks* after *a*, *o*, and *u*, as *lax*, *box*, *flux*, and sometimes *gz* after *e* and before *a*, *e*, *i*, *o*, and *u*: as example, exist, exempt, exonerate, exult.

The termination *-tion* is pronounced *shun*, and *ly*, *le*; *ed* *t* when it follows an aspirate stop, but *d* when it follows a vocal stop, or semi-vowel.

These are but a few of many such, which the teacher will find in the 'English Method of Teaching to Read.'

ACCENT AND TONE.

91. Full preparation has now been made to attempt something more in the musical culture of the voice. Accurate pronunciation of each element is essential to good speaking, but not all that is required. This might be and yet dullest monotony. Thought has its vehement, earnest, tender, persuasive and beseeching phases, and speech lends itself to their suitable expression. Strong or weak, loud or low, rapid or slow, it responds as a faithful index to the corresponding states of mind. Accent, tone, emphasis and pitch are the chief elements in these variations, and though controlled and directed by the ear till they become pleasing, they owe their origin more to thought itself than to hearing. Emotion as reflected in thought seeks utterance as varied in form as itself; and reason wants forcible words to embody its principal propositions. The deaf, it is true, are destitute of the regulating and directing sense, but they can feel and think like others, and therefore, there is nothing to prevent them from using accent, tone, and emphasis to give their speech sufficient variety to make it agreeable. The teacher must supply the place of the lost sense and regulate the manner and amount.

ACCENT

92. Accent, according to Webster, 'Is the more forcible utterance of a particular syllable by which it is distinguished from the others.' All words of more than one syllable require accent. The deaf would pronounce every syllable alike, and ought therefore, when introduced to

dissyllables, to be taught to accentuate the first. This they will readily do if they are made to feel, by touching the organs, that it means a greater force of voice. If the accent is on a consonant, then it means its sharper utterance, or on a vowel, a fuller tone with a corresponding rise. Compare the accent in *don'ative* with that in *dona'tion*, and it will be seen that *a* in the second not only permits, but requires a rise of the voice in the direction of *e*. Hence, words which have their accents on vowels are best adapted to the culture of the voice. Short vowels are too rapidly pronounced to admit of much variation of tone. The consonants which they precede take the greater force. But consonants are not all alike : some are semivowels, or trills, and, like pure vowels, admit of tone. Compare *ap'ple* with *lem'on*, and it will be seen that the voice is arrested at *p*, while in *m* it rises into a higher note. As time is the measure of long and short vowels, the deaf can distinguish them if the teacher resorts to beats, as in music.

93. This is the foundation from which any further development of euphonic speaking by the deaf must advance. Accent on one syllable necessitates a fall of the voice on the next. Like a wave, it will return to the level from which it rose. Again, when the accented syllable of any word has a long vowel and ends in a consonant, the accent, which in one with a short vowel would fall on the consonant, falls rather on the vowel, and the consonant is articulated with a decreasing force : compare *spouting* with *spotting*, and it is evident that the *t* in the latter is more forcibly delivered than in the former. When words consist of a number of syllables, a second accent, but weaker than the accent proper, is admitted for vocal ease, or because its elements are themselves words with their own fixed accents, and hence retain something of them while yielding to the greater force required for the principal accents. *Exem'plifica''tion* may be taken as an instance. Here the accent is on *ca*, but *em* has also an accent, though lighter. Better, however, with the deaf, to avoid these refinements till the chief accent of all such words is well mastered. It would be well, as an exercise, to take

some words, as *notwithstanding*, and place the accent on each syllable in succession, so that the learner may give forcible utterance to it, and ascertain for himself the effect on all the other syllables. For the voice hastens on to the accented syllable, and reduces the time that would be given to each if pronounced apart; and in a similar way hastens to the end of the word after the accent, like the rush before leaping and the falling off quickly afterwards.

The following are short and long syllables, exemplifying the difference in accent and tone:

Short Vowels.

băt	bĕd	bŏg	mŭg	pi̊t	ri̊p
fat	fen	dog	tug	bit	rim
hat	den	fog	rug	sit	rif
cat	ten	sod	bun	fit	rig
lap	fen	rock	sun	bid	rid
map	pen	sock	pun	riv	rik
nap	men	lock	fun	pin	yik
sat	hen	box	bud	fin	gip

Long Vowels.

bãll	bäne	moan	flūte	beet	bi̊te
wall	dane	loan	put	feet	kite
fall	fane	groan	root	meet	wine
tall	mane	boat	boot	been	fine
gall	sane	note	mute	mean	mine
pall	cane	vote	pull	peel	fight
caught	fate	wrote	push	meal	might
sought	late	stole	bush	steel	abide

ACCENT AND TONE IN DISSYLLABLES.

94. Most dissyllables have the accent on the first. The exceptions have to be carefully noted and learned, as *content′* and *con′tent.* But if

the first has a long vowel, then it is by tone rather than by a sharp accent that it is distinguished from the second. Compare *fat′ter* with *mind′ful*, and it is evident that the *t* which ends the first syllable *fat* receives the accent while the long vowel *i* in the second word has the tone. In using the above exercises this distinction should be closely attended to, so that the consonant which ends the first set shall receive a strong accent, and the long vowel in the second set a full tone. These exercises ought to secure greater distinctness of utterance, which is never to be lost sight of. When the word consists of several syllables, of which those that precede the accent are long, then the force is distributed over them and culminates on the accented, as in *revi′ler*. If the learner pronounces the following dissyllables, giving them the accent or tone, it will be found that his voice drops in the second syllable, so that nothing more is required to secure its right pronunciation.

bat′ter
fat′ter
lad′der
dag′ger
trap′per
tan′ner

pain′ful
mind′ful
good′ness
mil′der
foun′tain
pro′vide

sol′der
spin′dle
bat′tle
tem′ple
pin′fold
prod′uce

hate′ful
hope′less
slow′ly
tru′ly
mourn′ing
glo′ry

This is the foundation of that variation of tone already referred to, and of which the music of speech mainly consists. Every vowel has its own pitch. No two are exactly alike, and their recurrent pronunciation would prevent absolute monotony, but under the force of accent and tone they can be made to rise and fall like wavelets.

EMPHASIS.

95. Emphasis has the same relation to accents, that accents have to syllables. (*a*) In an ordinary sentence it marks the principal words as the noun and verb, around which all the others cluster. (*b*) In sentences containing information on some interesting subject, it marks the

word or words which convey it most. (*c*) In commanding, entreating, or asking, it is placed on the word or words that respectively contain them, and the replies correspond. (*d*) In strong negative sentences it rests on the negative words. (*e*) And in contrasted or antithetical sentences or phrases, on the parts containing the antitheses. Sometimes the other parts of such sentences are pitched lower, to give the emphasis greater fulness. (*f*) Quotations casually introduced, to enforce an opinion or statement of fact, receive the emphasis. Works on elocution will furnish the remainder.

EMOTIONS INFLUENCE THE VOICE.

96. But the voice, as already stated, responds to all the emotions. Joy or sorrow, pain or pleasure, indolence or earnestness, has each its appropriate tone. No doubt the ear has much to do in modifying these tones into rhythmic forms, still, emotion is the creator of them, and can be employed for their production in the deaf, subject to the control of the teacher, who will know how to use appropriate occasions for their natural exemplification. The (*a*) interjections furnish ready illustrations, and assist the learner to their meaning, as well as to their phonetic distinctions.

Oh, I have cut my finger!
Oh, I am happy!
Ah, I have found you!
Alas, my father is dead!
Halloa, the fox and the hounds are here!

or the following:

Stop thief! Catch that bird! Take care! Stand back!

(*b*) Again, questions and their answers will bring out the emphatic word.

Where did you put my knife? I put it *on the table*.

Here the place in which the knife has been put is inquired, and the emphasis in both question and answer must be on the words relating to it. All the interrogative forms of sentences will furnish illustrations.

I went to the druggist's yesterday to buy some medicine, because I have a cold. *Who* went to the druggist's? *I.* *Where* did you go yesterday? *To the druggist's.* *When* did you go? *Yesterday.* *Why* did you go? *Because* I have a cold. *What* did you go for? *To buy some medicine.*

All such questions ought to be pronounced in a clear, strong voice, and repeated till the learner becomes familiar with their form, and can imitate them closely.

97. The next step is to mark the emphatic words in a number of sentences so constructed as to admit of pitching the voice on different keys, and this may be easily done if the emotions are enlisted.

My papa came *to see me* yesterday.
I am very sorry I *did not see* my brother.

Ellen was a girl of six; she did not behave well. Her papa said, 'I will take you a drive. Jane shall go as well as you.' Ellen was pleased. Her nurse began to dress her. She wished to wrap her in a scarf, but Ellen did not like it, and began to scream. Papa came into the nursery. He was angry, and said, 'I shall drive away and leave you.'

But in reading such sentences the learner will soon betray his ignorance of the proper economy of his breath, by attempting to speak when his lungs are exhausted, or by pausing at the end of every word. The emphasis which is required on certain words makes a larger demand on the breath, and as an unskilful musician expends much more air than is really required to produce fine tones, so do the deaf in speaking. They must therefore be taught not to waste the breath by useless aspirates, or by letting it escape between the words of a phrase or sentence.

(*a*) At first it would be better to divide even short sentences by a pause into subject and predicate, so as to permit the repletion of the lungs. 'Henry—writes a letter.'

(*b*) If a word ending in a consonant is followed by a vowel they ought to be united as if they formed one word: *s* with *a*, in the last sentence, is an instance. When the sentence is expanded, the different phrases of which it is composed can be separated in reading for vocal ease. 'John and his youngest brother set out for London at five o'clock yesterday.' Here 'John, and his youngest brother, set out, for London, at five o'clock, yesterday,' can be separated in reading, while the emphasis is laid on *set out.*

98. The eye of the learner will also require to be properly trained to take in all the words of a phrase or short sentence before he pronounces them, else he will confine his attention to each as it comes, and disjoint it throughout. This is the more necessary in his case. Hence adjectives and nouns, which they qualify; prepositions and their objects; adverbs conjoined with their verbs or adjectives, ought not to be separated, unless for some special purpose, that the habit of associating them in speaking or reading may be gradually formed. As *a beautiful-flower*, *an-old-man*, *rose-quickly*, *ran-away*, *walk-slowly*, *into-the-river*, *over-the-house*, *plenty-of-bread*, *a-bottle-of-wine*, *at-an-inn*, *in-an-inn*, *come-away.* The last examples may be also used as good illustrations of the manner in which several words become like one in speaking, as *attaninn*, *innaninn.* All such exercises as these at once train the eye and the voice. At the same time there is some danger of one or other element being left out or imperfectly enunciated. They ought therefore to be pronounced slowly at first, and then more and more rapidly as the organs acquire facility.

99. We all know that there is often a considerable variation between written and spoken composition. The former maintains the place and value of every sound, but the latter has many abbreviations for ease and rapidity. Now, as the speaking-deaf have to read speech; and not everyone with whom they communicate will be careful to pro-

nounce every word in full, but use colloquial or contracted forms, it is necessary to familiarise them with as many of these as possible. They should be written out in full, and then beneath their contracted forms, as

How do you do?	do not	it is	will not
How-d-ye-do?	don't	it's	won't

I am	he is	she is	we are	you are	they are
I'm	he's	she's	we're	you're	they're

These are but a few, but enough to illustrate the point. Some may object to them; but the fact is that they are used by others, and ignorance of them, on the part of the speaking-deaf, might often lead to puzzling misconceptions or irksome delays.

READING POETRY.

100. Preparatory to reading or learning poetry, a series of exercises ought to be so constructed as to enable the learner to form some idea of the composition of the feet into which most verse can be easily divided. These can be illustrated by beats with a baton, or by the usual marks.

¯ ¯˘ ¯˘ ¯˘ ¯˘ ba-by, la-dy, du-ty, fine-ly, sweet-ly,
˘¯ ˘¯ ˘¯ ˘¯ ˘¯ de-ny, sit-ting, pit-cher, en-try, con-tent,
¯¯ ¯ ¯¯ ¯¯ ¯¯ burn-ing, chang-ing, watch-dog, deep-mouthed,
˘˘¯ ˘˘¯ ˘˘¯ ˘˘¯ happy dáy, tripping ón, on the fóld, in the tówn,
¯˘˘ ¯˘˘ ¯˘˘ ¯˘˘ mérrily, háppily, cóme away, dó not stay out.

Trochee, ¯˘
Háste thee, Nýmph, and bríng with thée
Jést and yóuthful jóllity,
Qúips and crácks and wánton wíles,
Nóds and bécks and wreath′ed smíles.

Iambus ˘¯
When áll thy mércies″ Ó my Gód,
  My rísing sóul″ survéys,
Transpórted″ wíth the víew, I'm lóst
  In wónder,″ lóve, and práise.

Spondee ¯¯
Whĕn Ajăx strīves sōme rōck's vāst wēight to thrōw,
Thĕ līne tōo lāboŭrs ānd the wōrds mōve slōw.

Anapest ˘˘ – I am mónarch of áll I survéy,
  My ríght there is nóne to dispúte;
From the céntre all roúnd to the séa
  I am lórd of the fówl and the brúte.

This is Prosody, and if more is desired, grammars of the language will supply the rest. But the better way is to let the learner read and learn poetry. When he recites it, art can assist nature to the proper accents and emphases.

A METHOD OF TEACHING THE DEAF AND DUMB LANGUAGE.

101. Learning to speak is not, of course, learning language, for there is no necessary connection between words as sounds and thoughts. Words must first be heard and known as the names of the things which are thought of, and associated with them, before they can become a part of language. Their chief use is to suggest, as symbols, their ideas, and to keep them before the mental vision for the purposes of thought. This mental faculty of associating things and names is essential to reason. For without it any attempt would be vain to go beyond passing impressions. But writing, signs, or pictures might take the place of words as symbols of things, and form a rude defective language never comparable to words as an instrument of thought. Memory is the faculty by which we treasure up and recall these associations of words and things, so that we can think about them as if they were actually present. In fact, the association itself would be of no use but for memory. Now the deaf and dumb have ideas of things, like ourselves, but no words to symbolise them. The door which would have admitted them is closed by their deafness. Words and things have always been associated in our minds because we found them so in our infancy ; but the deaf do not find them so, and therefore words have no place in their minds. The deaf have memory also, but only of things, and no symbols for them till they try to make mimic figures of them—symbols whereby to think of and describe them to

others. These are called signs, and their development, the Language of Signs.

102. The problem, therefore, which presses for solution is, How can the deaf and dumb be best put in possession of language, that they may think and speak like others? Of signs I have already spoken, as unequal to the work, but of speech as thoroughly efficient, if associated with a right method of teaching language. It remains, therefore, to consider what is this right method, and see whether anything satisfactory can be advanced in its exposition. Evidently, our chief business for some time will be about associating words and things, or the naming of them, and our ideas of them. Shall we follow those who tell us that our only work for a time is to teach our pupils the names of objects till a sufficient store is laid up for higher mental uses, or in other words, 'To lay the foundations, collect the materials, and then begin to build'?

I think not. I am convinced there is a better way. A collection of names of objects is very useful, but it never made a thinker. As materials of thought they are essential, but till reason, or reflective thought, takes them up and uses them, they are of no account. Mental life is not in them, but in the manner in which they are employed. Dr. Max Müller tells us, 'There is no reason without language, nor language without reason.' Language and reason must therefore go hand in hand, else it will be like

> The toil
> Of dropping buckets into empty wells
> And growing old in drawing nothing up;

or, as Professor Fornari says, 'To know a dry vocabulary of words, and not their use in reasoning, never can constitute a true knowledge of language. Without speaking of the difficulty of learning such loose, or rather lifeless words, which live only when they are united in a proposition, the exercise of the memory, which does not correspond with the development of reason, becomes a mechanical reproduction prompted by acts without knowledge; and hence the memory, instead of being an archive in which true documents are deposited, is the stall of a stationer full of waste paper, all confused.'

103. But without words, reason cannot operate, and if it would be profitless to teach them apart from reason, then it remains to unite them so as to enlist reason from the first in the acquisition of language, and let it grow strong on its own proper aliment; for language stimulates reason, and reason combines the elements of language into new forms. Let us, then, turn to nature, and learn from her, the best of teachers. A little child shall be our book. How did he learn language? No doubt, some time before he could utter a word, his mind had received many impressions of things; but they were unproductive of thought till he heard them frequently named by his parents and nurses. Then he began to perceive that words stood for these things, and he tried first to imitate, and then to use them. His teachers did not confine themselves to mere names of things, attributes, or graduated phrases, in teaching him language. They talked to him as if he could understand all the forms of speech, and indulged in all the sweet nonsense in which deep affection delights. Great the joy when he could say 'Mama,' 'Papa.' Proud of his newly discovered power, he made fresh attempts, and succeeded, but always best in that which stirred him most. Words, sentences accumulated, and the real work of learning language, had begun. Prior to this he was passive, receptive; now will and effort do their part, and the mind is roused to the great work of imitation, the parent of speech; for which ample preparation had been already made in hoarded instincts and tendencies. The child is mentally awake, and prepared to admit the language of the universe. Now in these first essays in language, what most moved the mind of the child? Evidently, the things that lived, moved, and did something—not objects only, but objects making themselves seen and felt by their motions. Light was pleasant to the eyes, but how splendid

when it revolved in glowing circles! He heard it spoken of the while, not by nouns and adjectives only, but combined with verbs also. He repeated the words, and used them too. Here reason first found its limbs, because these were mental affirmations, or assertions by symbols in sound. None thought of putting the child off with a phrase, as the deaf are sometimes treated. He was treated with sentences, and made to feel that all he heard in the conversation of others was soon to be his own. Life and words increasingly seemed to be one, or rather, life was translated into language.

104. This is how children learn language. Can the deaf and dumb be taught language in the same manner? Not exactly; for the age and conditions no longer exist for them. In fact, the same conditions as those which embrace other childhood never do exist for them. An essential element is absent. Their deafness shuts out speech and thoroughly isolates them, when in other respects they are best prepared to learn. The only access to their minds open to us is already occupied by rude gestures. And yet these minds are not wholly inactive. Forms and shadows of things perceived, and revived by some principle of association, pass before them, but reason vainly strives to shape and combine them for its higher purposes. Names they have none by which to recall and arrange them, and no one has as yet broken the terrible silence that shrouds them by whispering them to the soul. But while the same conditions no longer exist, others very nearly allied can be instituted. The scientist cannot do as nature did in the formation of a substance which he has analysed, but he can bring the same elements together under similar conditions, and the substance is re-formed. In like manner new conditions can be instituted for the deaf, so that words precisely the same as if heard can find access to their minds; for to them thought is the same, the world the same, motion the same, and touch—the substitute for hearing—the same as an intuitive agent. Our method is therefore *intuitive* and *dynamic*, for it relates their minds to speech, as hearing relates it to ours.

105. Let us examine this more closely under the light of an illustration. Here is a ball lying on our table. It is referred to, and we look at it. The same impression is received by both. The deaf pupil has the same idea or perception as myself, but its name, 'ball,' is known to me, and at once suggested by my idea. Not so to him. He never heard the name ball, and therefore memory has nothing to reproduce. Is there nothing, then, in his mind but the idea? Yes, there may be an airy gesture or sign which he has used to describe such a ball to others. But I want to displace this sign by something better. I therefore teach him to say 'ball,' and when he can do that, and know that I say 'ball' by the motion of my lips, I turn to the ball in his presence, and after inviting his attention, I utter the name 'ball,' and look at it or point to it. He responds and says 'ball,' while he puts his hand on it, thus associating the two in speech and thought. Leaving the ball, I do the same with other objects, and after a time return to the 'ball,' whose name he reads on my lips, and repeats.

Immediately he points to the ball, and names it, and this proves to me that the name and its object are now associated in his mind without any intervening sign. He needs none, for he can do better. I may have to repeat the process, for his memory is not very retentive, from want of use; but at last the name and the thing will have the same place in his mind as in mine. I also ascertain that touch in him takes the place of hearing, so that, when he says 'ball,' touch conveys it to his mind intuitively, and suggests the idea of a ball without interposing any other mental image, as hearing does for me. His mental relation to words as symbols of thought is therefore the same as mine, and I have only to advance on the same lines to put him in possession of enough language for all his uses. This is what the Germans mean in saying, 'Every object should teach its own proper tongue or name.'

106. Thus we lead back the deaf child to the point where the hearing child began to learn language, and start him on the same royal

road. As soon, then, as he has mastered enough sounds to express common things and motions, let him begin to use them: as 'Get up,' 'Sit down,' 'Open the door,' 'Come here,' 'Go there,' 'Give me a book.' First pronounce the words distinctly, and see that he repeats them after you; then let him do the thing, and as he does it utter each word in relation to the thing or motion of which it is the name, so that it may be associated with it, and then say 'Get up,' and he will obey. This is language, for it describes what we do, and how we think and speak of it. Better avoid everything at this stage which requires a picture. There are plenty of illustrations at hand. The motions of the various parts of the body, or of animals, or the work of the school, can at once be turned to account, till the learner perceives that words thus spoken are descriptive of what he sees, and is done. Mentally, he has begun to live; for not memory only, but reason has been exercised, and that in the manner most in harmony with nature's teaching. He wants to be, and do, live and act, and he is supplied with the means. Charged with forces and capabilities of whose meaning and use he knew nothing, but only the restlessness they produced, now he finds objects and occasions which minister to his enjoyment, while they add to his knowledge and satisfaction. Our method, then, is—

107. First: to employ a definite action, seen and known by the learner, which a simple sentence will describe.

Second: to speak the words of this sentence so that the learner can see and repeat them in association with the action, and know that they are descriptive of it.

Third: to make the learner write and repeat them till their mutual association is so complete that when the words are seen or read the action is immediately suggested, or when the action is seen the words.

These are the strands of the threefold cord which, so intertwined, become one in language. Here is a similar application of that law of simple association which put us in possession of our mother tongue. The emancipation of the deaf child from the mental bondage into which he had fallen has begun.

108. But let us illustrate this more fully by returning to the ball. And now I want to convey the meaning of the word 'roll.' I therefore set the ball in motion on the table, and say to the learner, 'The ball *rolls.*' He repeats it after me, and applies it to the motion of the ball. He then writes the words on his slate or the black board, and repeats them, so that when they are afterwards seen he thinks of the ball rolling, or when he sees the ball rolling, he thinks of the words. Thus names of things are not learned apart from, but always associated with action. The method is therefore *dynamic.* The scientists tell us that life is force, consisting of two elements, the mental and the physical, and that it is manifested by thought and action. Of these elements, the mental is the superior, the master, and the physical the inferior, the servant. Language corresponds with these elements. They are its factors. Hence it is made up of two classes of words which correspond with these factors in meaning and use. They are the nouns and the verbs, or the names of things, and how they act, or are acted upon, or what they are. All other words are only phases, conditions, and relations of these two. A noun and a verb can form a sentence, and a sentence is an affirmation or proposition. 'James walks,' 'Tom runs,' are complete sentences, and the intelligent utterance of them are mental efforts. When they are taught together, language, as the instrument of all thought, is taught with them, but when they are taught apart, then there is no living connection between them, and they are little better than mental lumber. Our method will, therefore, in its development advance on these lines. Reason and language will advance together, and assist each other as they gather means and strength. Some may be surprised that such self-evident facts and principles should need to be so fully stated, but they are not aware that in the education of the deaf, and more than the deaf, they have never been applied; so that their minds are treated as store-rooms for words, rather than for thoughts and principles. Words only answer their uses when they become symbols of thought. Had these

deaf children but heard, nature would have used words solely for this purpose; but we step into her place as teachers, and the first thing we do is to put aside her method and substitute some defective one of our own. The consequences are ruinous. Deprived of the only efficient organ, and compelled to use a miserable substitute, the deaf struggle in vain to rise into mental liberty. They are dwarfed, and they know it.

109. Their mental forces are very much in the condition of the physical forces of a little child. Its little hand is perfect. Every bone, muscle, and nerve is in its place and just proportion, and yet they are almost powerless, for they have never been used. Soon, however, something attracts the eye of the child, and its possession is desired. Instinctively the hand moves, the fingers open, and an effort is made to lay hold of it. But failure follows, for strength is still lacking. The effort is renewed time after time, till at last the little fingers are around it, and it is carried in triumph to the mouth to be tested there. So the mental faculties of the deaf are all there, perhaps of a higher order, and as capable of development as those of hearing children, but feeble and inactive because unexercised. Properly stimulated, they will gather strength and prove equal to any task. Now the best stimulants are those which most please. A horse is a stirring object for such children, but a horse galloping, splendid. A cake is nice to look at, but finer to eat. As welding iron is only possible at a white heat, so thoughts and words never become one till the mind is stimulated by stirring objects.

110. In the illustrations already used we have followed the common arrangement of the words. No concession has been made in favour of the tendency in the deaf to compose in the order of their rude signs. They are learning the English language that they may think in it and speak it, and therefore no place is left for any other. The firmer we are in this respect, the sooner will the habits be formed. Permit signs, and they will interfere, for they will strengthen the old tendency and prevent the formation of the better. Signs must be

abolished, if the learner is to think in words as we do. The most difficult and trying part of our work has been with pupils who had been partly educated by signs. They not only clung to them, but strove to introduce them to those who were doing much better without them.

111. So far our method is similar to that which Mr. Hill has more fully developed, only differing in the greater prominence given to action or motion as fundamental to thought and language. But from this onward, though our end will be the same, the route to it will be different. He follows out what he calls 'mother's teaching,' without special reference to grammatical forms, and as far as possible in the manner in which numbers become well acquainted with the language of their country, who have never learned a line of grammar, by daily contact with the actual and hearing how others speak of it. But aware of the severance that deafness has caused between the minds of the deaf and living speech, he endeavours to supply its place by an admirably constructed series of engravings, which represent numbers of the scenes, objects, and actions of every-day life in bright colours, and on these he has constructed a set of graduated lessons with appropriate questions. These I have examined carefully, and, while fully prepared to acknowledge their excellence, I am compelled to question their sufficiency, and for the following reasons :—I. They do not fully cover the ground filled by the language in the structure and composition of its etymology and syntax, for it is impossible by any pictures, no matter how well designed, to represent the manifold phases of the actual. II. While eschewing grammar, they are graduated in form, and necessarily so because, as a matter of fact, little children do not learn the complex forms of sentences at first, but only the more simple, and then, after much hearing and actual contact with the ever-shifting phases of life, come to know and receive them as elements of language. The simple has to precede the complex, and therefore Mr. Hill has produced several other works in which he strives to supply what is lacking in the primary ; and unless the whole course

is brought under some strict test of its sufficiency, and that test can be no other than the grammar of the language, the teacher must still remain in doubt as to whether he has supplied all that is needed. But if grammar has finally to be resorted to, in order to test the sufficiency of the method, why not work under its direction from the first? Why not use action and pictures and everything else which may assist in the systematic development of the language from its simplest to its most complex forms? This can be graduated, and have all the freedom of Mr. Hill's method, with all the logical clearness, fulness, and sufficiency of the language itself; for if grammar does take account of the whole structure of a language, then a method which satisfies its requirements must be more complete than one which consists only of imaginary scenes and objects.

Again, this logical method is itself most suggestive of the manifold phases of life in supplying its requirements, because it leads thought into all the conditions, relations, and reflections which created the language itself, so that the teacher has something to guide and assist him in the construction of his exercises, and to assure him that he is advancing to a satisfactory end.

And, further, if the education of the deaf is to be carried on to a thorough knowledge of the grammatical structure of the language, and to assist in the development of his understanding as well as a full mastery of its only efficient organ, then this method lays the broad foundations and makes ample preparations for its future acquisition. The learner is not at first burdened or vexed by learning rules and forms whose meaning he cannot understand. He comes in contact only with the forms of speech that describe the actual and real, and grows into a knowledge of language much as other children do, only ordered to supply what his ears would have received could he have heard. In brief, we seek to combine the freedom of nature with the demands of science.

SUBJECT AND PREDICATE.

112. There is little difficulty with the subjects of simple sentences. They speak for themselves if they are common objects; but the predicates are not always so evident. They ought therefore to be illustrated by many examples, till their verbal nature is thoroughly understood. Such forms as these will assist :—1st. Commanding something to be done, as 'Shut the door :' then the doing of it ; and 2ndly, the relation of the action : 'I shut the door,' or, 'William, shut the door.' As the third person is simpler for use than the second, and the second than the first, such exercises can be constructed for the third person, unless when the second person is understood as in the Imperative. Again, take the pupil's place and let him command the same actions, doing them as he did. Then introduce a third person, treating him in the same way, repeating and writing the sentences till the learner knows that such forms lead to similar acts in those who can hear—are; in fact, a part of the language of life. The introduction of a child, who could hear, to do the same things from the same commands, would make a pleasant diversion, while it exemplified the forms.

The proposed order is to develope the subject and the predicate from their simplest to their most complex forms. But this will be done in a manner most in accordance with the freedom and simplicity of nature's teaching. The logic of grammar will preside over the process, but the ability and comfort of the learner determine the time and form of the illustrations. Instead, therefore, of completing the subject in all its accidents, as grammarians do, a few of the simplest will first occupy our attention, and then, as ability and knowledge increase, the more remote and complex will be introduced. Any other course would dishearten the learner and confound the teacher.

113. *The Subject.*—Suppose this is a common noun, its plural will be in place with the difference of termination to which it gives rise

from the third singular of the verb. Proper nouns are usually names of individuals and have no plural, but common nouns have, and take *s* as their sign. The instances in which the plural is formed by a change of vowel might well remain till the more frequent form is well learned. Here, too, the radical distinction between Proper and Common nouns provides a nice occasion for a little mental exercise. Common nouns describe classes ; proper nouns, individuals. This can be made plain, in regard to the first, by pens, nails, marbles, or stones, and by pointing out that the same name belongs to each and all of the same class ; and thus the first step is taken in the use of general terms, but at the same time the effect of an *article* in making any one of such a class special ought not to be overlooked. Proper nouns, on the other hand, confine the thought to the individuals whose names they are, and need no article. A proper noun is therefore concrete, as logicians say, because it is bound up with the individual, while the common has something rather of the abstract from withdrawing thought from the individual to the class. Of course, the pupil cannot know anything about such distinctions in their grammatical forms, but he can learn that out of which grammar grows—the difference between proper and common. As we have already said, should an adjective or a possessive pronoun be required to complete the subject that best commends itself, do not hesitate to use it, rather than put the learner off with a lame sentence. *Words constantly associated in composition ought to be associated in memory.*

114. *Predicate.*—The verb is the *word* of the sentence—the word of thought and reason. Its full development is therefore essential in language. Simple in itself, as asserting some action or condition, it becomes complex because it must have *number*, *person*, *time or tense, and mood* for its own precise form, and then *adverbs* and *prepositions* for its modifications and relations.

Enough has been said of Number. Person requires a little attention, because the deaf find it rather hard to distinguish persons.

They are at first confounded by the distinctions. The old rule is good. The speaker is in the 1st person; the person spoken *to* the 2nd, and the person spoken *of* in the 3rd person. If a number of things are said and done, first by the teacher and then by the learner, as 'I write,' teacher; 'You write,' scholar; and then a third party is engaged in writing, and you say of him, 'He writes,' the distinctions will be made clear. The same thing can be done for the plural by associating two or more in the same acts. When sufficiently illustrated, they ought to be written out in full with a verb, and learned. They are always employed in these relations, and the sooner they are associated the better.

MOODS AND TENSES.

Two moods only have as yet been employed—the imperative and indicative—because they best assist in procuring and describing action, and for the present our exercises will be confined to them, for the others are employed in less direct and self-evident relations. These can wait the further development of the sentence, when their uses can be made more evident, and the reflective power is greater for their comprehension. The various tenses of the indicative mood also will be treated in the same manner. In confirmation of this mode of procedure the following quotation will prove that others have adopted it.

115. 'Some of these phases are simple and easily understood, others are more complex, and make larger demands on reflection. The order is best determined by the ability of the learner. Hence the Active must precede the Passive, because they are more simple and direct; the Indicative and Imperative the Potential and Subjunctive, because they are absolute, and not relative like these. The Present, the Perfect, and First Future of the tenses must precede the others which are composite or relative. The relative moods and tenses, as

well as the Passive, are not understood till the mind of the learner has acquired the ability to comprehend such relations, or there is need to express them; and this is in accordance with a great principle directly applicable to language. That which shapes the conception determines the form—*res petit dominum.*' (Tarra.)

The verbs already used in the Imperative and Indicative Present can also be used in the Present Perfect and First Future. There are three Presents in our language. First, the simple or absolute statement of an action, as 'James writes;' secondly, the Progressive, as 'James is writing;' and thirdly, the Emphatic, as 'James does write;' but the first is preferred for the present, from its simplicity. Of the other tenses the Present Perfect is preferred to the Imperfect, because the latter refers to a second point of time, while the Present Perfect has the Present as its terminus, as—'James has written his letter.' The First Future can also be used of an action simply Future, as 'James will write a letter.'

PERSONAL PRONOUNS.

116. The Personal pronouns, not as yet learned, may be appropriately introduced at this point. They are substitutes, as their name implies, for nouns, to avoid their too frequent repetition, and also to distinguish the different actors more fully. Hence they require some reflection to connect them with their respective nouns. They can be easily illustrated by a few sentences in which the nouns are written out in full, and then, where necessary, displaced by the appropriate pronouns. Better not to omit them, where a comma usually fills their places in composition, till the learner has become familiar with their pronominal value. *You* ought to take the place of *Thou* in the second person.

117. Now, as pronouns are of different genders, corresponding with

their nouns, this would be a fitting time to illustrate gender in the latter, and then the learner will perceive the reason for the pronominal differences. A wider field is now open for composition, and a number of sentences can be composed in which those who are present may have a place, as 'I write on the board.' 'You cut your pencil.' 'He reads his book.' 'Tom and William have learned their lessons.' 'They play in the garden.' 'She knits a purse.' Now in such exercises there is some licence. Words and phrases have been introduced whose precise meaning must be obscure to the learner, as the possessive pronoun and the preposition, and we think, rightly. They are necessary to the completion of the sense. To conclude without them would be like attempting to walk on one foot. The meaning of the whole sentence may be clear, when that of some of its elements is still obscure. Transitive verbs generally take a direct object, and intransitive frequently an indirect. They ought to be added as required. Nature is better here than logic. *The law of association is very potent, and ought to be enlisted wherever it binds words together that are in constant use.* Let those verbs then take their usual complements as they exist in the actions which they describe, as 'William strikes the table.' 'Tom has thrown his pencil into the fire.' Any attempt to explain the precise relation of these objects to their verbs would be premature. Both express the form of the predicate as perceived, and that is sufficient for the present.

A too rigid adherence to what has been well learned in language frequently leads to a very partial expression of what is most evident. An adjective, or a possessive pronoun, or a personal pronoun in the objective case, may be wanted, and ought to be supplied. Grammar and logic are excellent in their place, but language precedes them, and language is learned by hearing the words and sentences usually employed to describe the actual phases of life and nature.

TO BE and TO HAVE.

118. But while advocating such freedom, we are not in favour of any method which would dispense with logic or presume on foundations not carefully laid. On the contrary, we would strictly confine ourselves to what can be tested by the senses till the mind has acquired strength and knowledge to advance to the abstract and relational. Therefore *to be* and *to have*, as principal verbs, ought to stand aside. The first is the *copula*, and unites the subject and predicate of a proposition. Little children usually leave it out, for its use is a purely mental act of which they are incapable. It also implies existence or being, as 'God is.' *To have* has also two meanings, either to possess or to hold. This ambiguity creates confusion of thought which ought to be avoided, till there is more power to discriminate. *Better, at first, to use illustrations, in which the subject and predicate will at once appeal to the senses, and carry home their meaning by the directness and clearness of their terms.* But while deferring the use of *to be* and *to have* as principal verbs, they can be safely employed as auxiliaries, for they supply the place of terminations or prefixes of voice and tense in some other languages—in fact, are parts of the verb itself. This too would obviate the difficulty felt by most learners, who begin with these verbs as principal, to understand how their meaning can be carried forward to their auxiliary uses. These conclusions are confirmed by the Abbé Tarra. 'Remembering,' he says, 'that the two verbs *to be* and *to have*, which lie at the basis of our primary ideas, and which stand at the beginning of all grammars, as the first on which to exercise the judgment, really express two abstractions which Rosmini, the philosopher, says 'are the first in intuition and the last in reflection,' and which, to be intelligently comprehended by the deaf and dumb, require great linguistic, mental exercise, we shall find it more logical and convenient to proceed

rather with the use and conception of those names with which the living exercise of action and of movement, arising from receiving commands, are associated. These being more felt, varied, and agreeable, are better adapted to minds in which perception is stronger than reflection, and the desire to move and see motion greater than to sit down and describe things that are; and what they are: how composed, and of what materials. This study,—analytically descriptive of what they *have*, and then of *whose*, and what *they are*,—will come in order when the mind is more robust—provided that we begin with the exercises on *to have*, which are more obvious and suggestive than those on *to be*, which are less apparent and more abstract, and hence of a much more advanced grade of reflection.'

119. At this stage, the Imperfect Past Tense might be added to the others. In its historic use it can stand alone, as 'Milton *wrote* "Paradise Lost;"' but in its more common, the point of time when the action took place is either expressed by an adverb, or understood, as 'I went to town *yesterday*.' Introduced to the learner in this latter form, he can the more readily distinguish it from the Present Perfect, which he has already learned, while it assists in illustrating the relative character of such tenses. The Imperfect Past has three forms, like the Present, which describe the action in the same way: as 'He ran,' 'He was running,' 'He did run;' and their use can be best illustrated by first employing the Present in the same forms, and soon afterwards the same actions, as Past, so that it is clear that the difference lies in the time, and not in the manner.

These—except the Past Perfect and Second Future, which will not suffer from waiting a while—complete the list of the tenses of the Indicative mood. They require more thought and a fuller acquaintance with the other tenses.

120. As progress, in order to be real, must be ascertained at every step, and nothing taken upon trust, efficient means must be employed to discover the mental uses made by the learner of the forms he has

been already taught. If he can write similar sentences in view of the actions they describe, this will be a fair test. Let him then become the chief actor in a number of little things, and as he performs each part, speak the appropriate words. Give him, for instance, a hammer, a nail, and a piece of wood, and let him drive the nail into the wood, saying at the same time, 'I am driving this nail into the wood.' Then do the same thing yourself, and let him describe it as 'You are driving the nail into the wood.' Put the action in the Imperfect Past, marking the point of time; or in the Present Perfect just when the action is completed; or in the First Future when you are about to do it. A few such exercises will make most evident that tense means time, Present, Past, and Future, absolutely or relatively.

121. Another and effectual test is the employment of a series of questions framed to elicit the part which each member of a sentence contributes to the meaning of the whole. This is analytic, or the resolution of the whole sentence into its several elements, and as such makes a considerable demand on the learner's powers of reflection, and therefore ought not to be prematurely introduced. It proceeds on the assumption that the order and terms are so well known and mentally associated, that it can be viewed as a whole to ascertain the value of any one part, and this may be far from the fact. To begin to pull down before the learner knows how to build, only breeds mental confusion. I would therefore defer this analytic process till I was satisfied that the sentence as a direct statement is well understood, and has taken up its place in the learner's mind as a permanent part of his thinking, before I proceeded to pull it in pieces. The form of the sentence determines the shape of the various questions upon its members. Hence their structure will vary. We want a direct answer, we therefore use a question in an inverted form. But in addition to this, we fill the foreground with the word or phrase which most seeks the answer. This construction is new to the learner, and ought to be well illustrated, so that he may not confound it with the direct construction

of the sentence itself. As Negative as well as Positive sentences should have a place, as 'John has written his letter,' '*but* James has *not* written his letter,' the reference in the question to this feature ought to be well marked. Better at first to be contented with the *who* and *what* which will elicit the agent and the action, and afterwards introduce the interrogative terms appropriate to the new phases of the sentence. Here too the voice will assist. We emphasise the interrogative word so as to direct attention to it, and the mind follows its lead. This we can do for the learner, and at the same time we may underline it when written. Thus it may be made as much a voice as a mental exercise. The use of the interrogative point ought to be well impressed.

Kant and other philosophers, who have treated on the matter of our ideas, have devised a set of leading forms for questions intended to elicit every member of a sentence. They are here given because they may be helpful to the teacher.

Who, or which,	indicates the	agent or subject
What or whom	,,	object of the action
When	,,	time
Where	,,	place
How	,,	manner or form
How many or much	,,	number or quantity
Why or wherefore	,,	cause or reason.

Applied : 'James went to town in a cab yesterday to see his sick brother.'

Formula
Who went? James.
Where did he go? To town.
When did he go? Yesterday.
How did he go? In a cab.
Why did he go? To see his sick brother, or because his brother was sick.

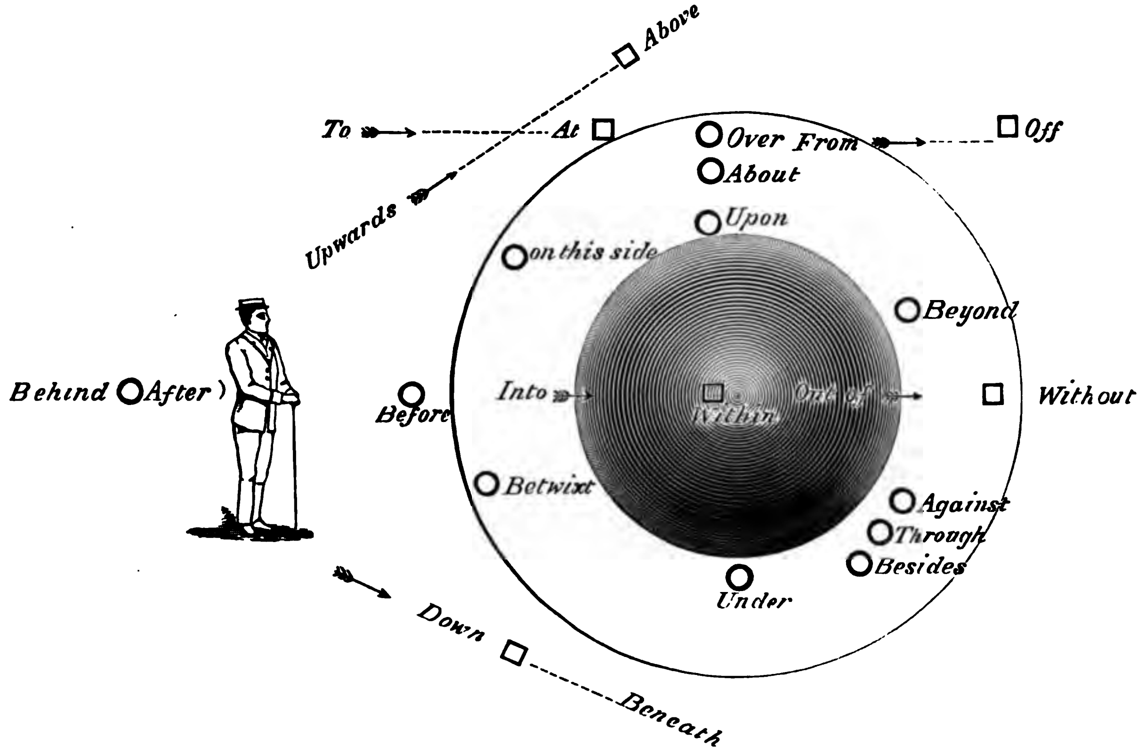
These cover most of the ground, but they involve the use of terms of which the learner at present can have but little knowledge. Let them therefore abide till they can be intelligently used. But the simpler forms ought to have a permanent place in all future exercises.

ADVERBS AND PREPOSITIONS.

122. In describing the full or complete action of the verb in its different modifications and relations, two classes of words are employed, which qualify its force, manner, and direction. These are *Adverbs*, or modifying words, and *Prepositions*, or relational words. In respect to the former, the learner can soon be led to understand their nature and value from a few sentences having verbs of motion admitting their employment, as 'James writes fast.' 'Eliza writes well.' 'Tom walks slowly.' 'That bird flies swiftly.' And then comparison may be introduced in respect to such adverbs, with the termination *er* and *est* or *more* and *most* for comparatives and superlatives.

123. In respect to *prepositions* or relational words which express the origin, direction, or end of the motion of the verb, or how it is affected by different objects, their nature and value can be equally demonstrated by some sentences in which they suggest relations of direction or position, as—'Put your hat *under* the table,' 'Lift that pen *off* the floor,' 'Put these slate-pencils *into* the box,' 'Stand *behind* the door,' 'Sit *by* the fire,' &c. Some verbs are followed by prepositions which are never used apart when the same idea has to be expressed, as *get up*, *sit down*. These have something adverbial in their nature, and yet are prepositions, because they express direction rather than modification. In Horne Tooke's 'Diversions of Purley,' there is an ingenious diagram descriptive of the relations of the prepositions to a globe or ball surrounded by a circle or boundary. On page 129 there is a similar diagram, and it will be understood at a glance. Better, however, not to use such a figure, but the different articles of furniture in the room, or the room itself, in illustrating the various prepositions. 'Tom comes *into* the room, James goes *out*.' 'Put this *on* my desk.' 'Open that drawer, and take *out* your slate.'

FIG. 21.



The arrows indicate continuous motion, the circles terminated motion, and the squares rest, but dependent on the verb.

124. Verbs of action are usually divided into two classes, called Transitive and Intransitive, and the grammarians say that the action passes on directly to an object in the former, and indirectly in the latter, which is generally expressed by a preposition. This may be so, but affords little aid to the teacher in explaining it to his pupil. The fact is, that the object of the Transitive verb is the end or result of its motion or action, while in the Intransitive, which has no such end or object, the preposition expresses the direction of the motion or its place. But it is also evident that Transitive verbs have indirect objects, descriptive of the direction of their motion. Horne Tooke's diagram will assist here. Pronouns in the Objective case can be made serviceable in illustrating both classes of verbs, as 'I gave a book to him,' or 'I gave him a book.' 'He struck me on the head.'

As this is not an exercise-book, but an exposition of a method, only few examples are supplied. The teacher ought to be able to make his own illustrations. They will have the freshness and directness of actual scenes, and be much more impressive than if borrowed from a book. Negative as well as positive forms ought to be used, as well as any qualifying word necessary to the sense. But, to assist somewhat in this direction, I here transcribe Webster's list of verbs expressive of motion, with his own remark :—

'As the verb is the principal radix of other words, and as the proper province of this part of speech is to express *action*, almost all the modifications of the primary sense of the verb may be comprehended in one word, to *move*.

The principal varieties of motion or action may be expressed by the following verbs :—

1. To drive, throw, thrust, urge, press.
2. To set, fix, lay. But these are usually from thrusting or throwing down.
3. To strain, stretch, draw; whence holding, binding, strength, power, and often health.
4. To turn, wind, roll, and wander.
5. To flow, to blow, to rush.
6. To open, part, split, separate, remove, scatter. (See No. 16.)
7. To swell, distend, expand, spread.
8. To stir, shake, agitate, rouse, excite.
9. To shoot as a plant; grow; allied to No. 1.
10. To break or burst; allied to No. 3.
11. To lift, raise, elevate; allied to No. 9.
12. To flee, withdraw, escape; to fly; often allied to No. 1.
13. To rage, to burn; allied to Nos. 7 and 8.
14. To fall, to fail; whence fading, dying, &c.
15. To approach, come, arrive, extend, reach. This is usually the sense of *gaining* No. 34.
16. To go, walk, pass, advance; allied to No. 6.
17. To seize, take, hold; and sometimes allied to No. 31.
18. To strike, to beat; allied to No. 1.
19. To swing, to vibrate; No. 29.

20. To lean, to incline; allied to the sense of wandering or departing.
21. To rub, scratch, scrape; often connected with driving, and with roughness.
22. To swim, to float.
23. To stop, cease, rest; sometimes at least from straining, holding, fastening.
24. To creep, to crawl; sometimes connected with scraping.
25. To peel, to strip; whence spoiling.
26. To leap, to spring; allied to Nos. 9 and 1.
27. To bring, bear, carry; in some instances connected with producing, throwing out.
28. To sweep.
29. To hang; No. 19.
30. To shrink, or contract; that is, to draw. (See No. 3.)
31. To run, to rush forward; allied to No. 1.
32. To put on, or together, to unite; allied to Nos. 1 and 3.
33. To knit, to weave.
34. To gain, to win, to get. (See No. 15.)

'These and a few more verbs express the literal sense of all the primary roots. But it must be remarked that all the foregoing significations are not distinct. So far from it, that the whole might be brought under the signification of a very few words. The English verbs 'to send, throw, thrust, strain, stretch, draw, drive, urge, press,' embrace the primary sense of a great part of all the verbs in every language which I have examined. Indeed, it must be so, for the verb is the root of most words; and the verb expresses *motion*, which always implies the application of *force*.'

Now, if this be so, we are on the right line for the development of thought and language, and in possession of a great radical principle which only requires wise application to enable us to indicate the close relationship of all the words in a sentence to one another.

This list supplies numerous verbs, to which appropriate subjects can be joined from our surroundings. Let them then be reproduced in living forms, till deeds and words become one in the minds of the learners.

USE OF PICTURES.

As many objects are not at hand, and cannot be easily procured, with whose names and uses the learner ought as early as possible to be made familiar, recourse must be had to what is next best adapted to give him vivid ideas of them. Here art steps in, and becomes an efficient substitute for nature. Drawings and photographs bring the distant nigh, and reproduce them almost as vividly as life itself.

But they ought not to be much resorted to or relied upon till the actual has become familiar. A picture does not and cannot be made to represent the ever-changing appearances of life and motion. It is the actual at one moment only, and therefore cannot produce the successive mental impressions which all its moments would have done. Besides, the main incident for whose illustration it is employed may be obscured by accessories. Hence pictures are defective and insufficient as instruments of primary education. They fill a large place in some systems, and are frequently reproductions of things at hand, as if the shadow were better than the substance. But Nature is stronger than all her imitators, and her direct action on the mind does more to quicken and attract it than all the expedients of art. Pictures delight us because they revive the pleasant feelings we had when we gazed on the scenes or objects of which they are reproductions. Our work as teachers is best done under Nature's auspices. Let her speak as often as possible, and when pictures must be used, let them be full of life and action, till the learner is made familiar with the part each thing plays, or the use to which it can be turned. This accustoms him to think and speak of things as they are, or in the order of their occurrence, and the habits are formed which determine the future action of the mind. Those who know anything of the deaf need not be told that they generally fail in composition. And why? Because their ideas are not clothed in the same language as our own, but in the shadows of shadows.

125. A point has been reached in the development of the sentence at which the verbs *to have* and *to be* can be appropriately introduced, as without them real progress might be retarded. It has been already remarked that *to have* has two principal meanings: the first in reference to what is possessed, and the second to what is held, and which may or may not be the property of the holder. Both can be easily exemplified by using things which do or do not belong to those who are present. But if there is some difficulty in conveying clear conceptions of both meanings, then let one suffice, and the other wait a better time.

126. In the development of the sentence hitherto pursued, action has determined all its members and furnished all its illustrations. The noun, pronoun, active verb, and object, direct or indirect, have been successively submitted to the eye and reflected in idea and in language. This is the first stage of the process, and, as far as has been ascertained, in harmony with the order of nature. Children begin with the visible and the concrete, and, when provided with the ideas and the mental force required by reflection, pass on to the unseen and the abstract. The concrete alone never made a thinker. Reflection begins with comparison of ideas, and affirmations on their agreement or contrariety; and this is done, not by a verb of action, but by one of simple assertion or affirmation—the Yes or No of the mind. The verb *to be* fills this all-important place, and brings together the ideas under comparison—not only uniting them as a proposition, but affirming their oneness, as A is B. Hence the nouns, adjectives, adverbs, and prepositions that follow this verb are not objects of an action involved in its form and the effects it produces, but united with it as the second of the two things compared, and standing in the same affirmative relation to it as the first. Action has not passed away, but now it is mental and abstract, and the material is in abeyance. This distinction is not fanciful, but real, and must be attended to in the

education of the deaf; for the precise meaning of adverbs and conjunctions is dependent on their relation to the active or the affirmative verb. This verb ought to be learned and repeated in all the tenses of the Indicative mood, except the Past Perfect, and Second Future, using *you* instead of *thou* for the second person singular. Illustrations of its use are ample. They are on every side, and ought to be repeated and varied till the form of the sentence becomes familiar. Better confine these exercises at present to nouns, and leave adjectives &c. for another stage, as—'John is a boy.'

127. In our development of the sentence, the predicate has had the principal place and the subject has consequently suffered. But intentionally so, for it contains an element—not, however, exclusively its own, but also associated with the predicate—which exercises a great influence in the direction of abstract thinking. The adjective in conjunction with the verb *to be* enables the mind to rise into the contemplation of qualities, properties, forms, and relations of things apart from themselves, and therefore its fuller treatment has been reserved. Now the adjective stands in the same relation to the noun as the adverb to the verb. It qualifies the noun, or rather sets forth its qualities and properties, and because these differ in degree, it is capable of comparison. Thus, though subsidiary and dependent on the noun in the first instance, it becomes primary in importance when made the subject or predicate of a sentence, for it permits those comparisons of the like and the unlike with the classifications of the former, which are the first elements of science. Let then a series of sentences be constructed in which the adjective is associated with the noun it qualifies, as—'William is a good man,' or, 'A wise man loves God.' Others ought to include colours and numbers.

The active sentence ought also to be connected with the assertive, as—'John is a little boy. He went to the wood and found a bird's nest. There were four young birds in it. He took them out of the nest and brought them home. But he could not feed them, and they died. He is a cruel boy.' Then write a series of questions on these sentences, which will elicit the adjectives as well as the nouns and verbs. The more of such exercises the better. The learner ought to construct others like them. *Words are never our own till we use them in composition.*

128. But in addition to adjectives so called, there are adjective pronouns, which stand in a similar relation to nouns, but retain so much of their personal, numeral, distributive, and demonstrative character as to give the nouns with which they are conjoined a more specific form. They all denote *quantity* and *quality*, and can be conveniently taught from surrounding objects, as—'*This* book is large! *That* is larger.' '*Many* men were lost in the "London."' Any grammar will furnish a complete list of these adjectives, and they ought to be freely used in exercises.

The possessive case, like the possessive pronoun, stands in an adjective relation to nouns, and ought to have its place here, as well as nouns in apposition.

129. The articles *a* and *the* are by some called adjectives. Their proper employment is one of the great difficulties of the deaf, and therefore they have been associated with their nouns from the first, that usage may assist the learner. '*A* is called indefinite, and used to point out indifferently any one of a class, and *the* some particular thing of which we are thinking and speaking.' This is very well as far as it goes, but hardly sufficient for the deaf, in respect to *the*. Practically, it has been found better to say, *the* refers to something known and familiar, or that has been previously spoken of, and therefore has a place in the memory; as—'I saw *the* poor man to-day whom we met yesterday at the station.' Or, again, it refers to something distinct and separate by its place, state, or condition, as—'Give me *the* book which lies on the table.' Here it is the only book, for if there were more, *the* would not be applicable. Custom has led to its constant association with some well-known things, as *The Thames*. But it is absent in others, as *London*. These must be learned by using them in composition.

COMPARISON OF ADJECTIVES.

130. Now, as the verb *to be* enables us to affirm the general agreement of things and qualities, so the adjective and adverb enable us to state more accurately their specific variations, and this is done by contrasting them. The power of doing this is called by Professor Bain, 'The law of gravitation of the intellectual world,' and 'The methods to be pursued in attaining the commanding heights of general knowledge are framed by the circumstances attending the detection of like in the midst of unlike.' 'There are many shades of colour as distinguished by the discriminative sensibility of the eye; yet the same shade often recurs. There are many varieties of form—the round, the square, the spiral, &c.,—and we discriminate them when they are contrasted; while the same form starts up again and again.' Juxtaposition is necessary to the ascertainment of agreement and difference. By placing things side by side, we ascertain in what they are like and unlike, either in substance, size, or quality. Suppose we wish to illustrate the different degrees of comparison. Then take a few Swiss bricks of different lengths, but otherwise alike. Place them first in two sets of three each, but also differing in length. Here, then, are the *long*, *longer*, *longest*; and the *short*, *shorter*, *shortest*. Now take another piece, much longer than any of these, and lay it by the long set. This is the *very long*. Add another piece to the short set, very much shorter than they. This is the *very short*. These bricks can also be compared in other respects till all the points in which they agree or differ are perceived and expressed in words. Pass on to other objects, qualities, and conditions, till the eye of the learner begins to discriminate all the agreements or differences amongst them. Nothing can more contribute to the development of his understanding and mastery of language. Stimulate him also to find out and name the like and unlike for himself, and he begins to be an observer.

ABSTRACTION.

131. If by abstraction is meant the power which the understanding has of considering certain qualities or attributes of an object apart from the rest, or of uniting the properties which a number of objects possess in common into groups, and naming them as such, the elements are now provided, if rightly used, to enable the learner to form abstractions. A number of substances can be compared, and one or other quality in which they agree asserted of each. Then this quality can be considered by itself and made the subject of a sentence, as—

Iron is hard
Stone is hard
Coal is hard
Gold is hard
Tin is hard

Hardness is a quality of iron, stone, coal, gold, and tin.

A few illustrations of this sort, if the learner is sufficiently advanced, will prepare him for object lessons, which are eminently useful in forming a habit of close and careful observation, as well as in aiding the development of this abstracting power. Submit everything at hand to his examination; distinguish and name their every attribute; then group the like among them, and point out their similarities, making each stand apart from all the rest, and soon he will be able to do the same for himself. His mind is in possession of the symbols by which it can deal with the abstract, apart from the concrete. However, should he not be able to grasp this abstract use of the adjective, it may remain in abeyance till a greater command of language enables him to deal successfully with it. The frequent use of numbers apart from objects, and of common names or names of many objects forming a class, as 'man,' 'horse,' &c., are on the same lines, and if resorted to will strengthen the required mental power.

132. 'Numbers of relations can now be illustrated by the use of the

simple tenses of the verb, with nouns, pronouns, adjectives, prepositions, and adverbs, and the full meaning clearly expressed. New facts and incidents ought therefore to be sought out, presented for translation into words, written and spoken, till they are closely associated; and then a number of appropriate questions employed to bring out their every phase distinctively.—(1) The simple tenses ought therefore to be conjugated in the Indicative and Imperative, with a variety or complements direct and indirect, till they are linked together in thought and speech.—(2) Let the spontaneous or commanded acts of the past, present, and future be spoken in their order.—(3) An account ought also to be given of things done at different times and places.—(4) And of known persons or animals, either specially or generally.—(5) Relation given of what is done with specified things, or in specified times and places, by different persons.—(6) With a brief summary of the acts dictated by the master, and then by dialogue obtain full evidence that the construction and the circumstances are thoroughly understood. In fine, that the teacher in this first period should have as the constant object of his language lessons, the things, and the necessity, or the needs which form the daily life of his pupils; so that all this element is reclothed with language, and intercourse is facilitated by means of the living word.' (*Tarra.*)

COMPOUND TENSES.

133. Two tenses have hitherto been omitted because they involved complex relations of time which the learner was not prepared to comprehend. These are, the Past Perfect and the Future Perfect. Now, if their precise nature is clearly understood, all difficulties in their illustration will vanish. Both are used when another action or assertion that intervenes or follows is expressed or implied. The Past Perfect is the affirmation of an action prior to another action, also in the past, as—'I had finished my letter before he arrived.' Here three

points of time are involved : the Present, in which the thing is spoken; the Imperfect, or *the arrival* of the second party ; and the Past Perfect, or the first party *who had finished his letter*. If these points of time are marked and a number of illustrations constructed in the same form, by two persons, as—Tom *had said his lesson before James came into school*, the learner will soon be able to write and speak similar sentences for himself.

Again, the Second Future describes an action or event as taking place before another future action, event, or point of time. Or otherwise, from the present point of time, two future events are seen approaching, and the Perfect Future is the first of these ; as—' He will have seen his brother before he sails.' It ought to be noted that while the Past Imperfect employs adverbs or adverbial phrases to mark its time more definitely, the Past Perfect employs actions or sentences. This Second Future tense ought to be illustrated as fully as the Past Perfect, and the whole of the mood to which they belong, after their insertion, learned and repeated.

AUXILIARY VERBS.

134. In addition to those already used as tense auxiliaries of the Indicative Mood, there are also mood and voice auxiliaries which considerably modify the verb potentially and conditionally, as—*may, can, must, ought, should, would, &c.*, which demand special notice.

May, and its past tense *might*, express permission or opportunity, liberty, possibility, and ability. The little incidents of school life will best illustrate these uses, as—' May I go out? ' ' May I have a pen? ' ' May I go to town to-day? ' 'You may have some of my paper.' ' You may not play in the garden to-day, for it rains.' The distinction of pupil and teacher in the use of this auxiliary will be at once apparent. It would be out of place for the latter.

Can, past *could*, expresses power or ability, possibility, and knowledge, as—'James can write.' 'I cannot do my sum.' 'I cannot tell a lie.' 'He can walk a mile in fifteen minutes.' 'John can leap twelve feet.' Most of these can be made evident by performances.

Must, necessity or obligation, physical or moral: 'We must eat to live.' 'We must finish our lessons.' 'He must not blot his book.' 'You must go to bed and sleep.' 'You must not touch fire, it will burn you.'

Ought, obligation, or constraint of circumstances, fitness or expediency: 'You ought to love your parents.' 'We ought all to love and fear God.' 'You ought not to be idle.' 'You ought to do your best.' To *owe* or to be *due* is at the root of this word.

Should, past of *shall*, conditional past or present duty or responsibility: 'I should like to see my brother, but cannot find time.' 'You should not tear your jacket.' Here it is emphatic, and implies obligation. 'If you should meet him, tell him to come here.' Contingency is implied in this.

Would, past of *will*, volition, condition, wish, or prayer: 'I would go if I could.' 'He would not let me in.' 'She would walk out in the rain, and caught cold.' 'I would my brother were here, he could help me.' 'Would to God it were morning.'

These illustrations are given to suggest the line of instruction, rather than the precise thing best fitted to convey the simplest meaning of any of these auxiliaries. The capacity of the learner and ability of the teacher will lead to that when required. There are happy expedients suggested at the moment of greatest need which cannot be anticipated.

THE PASSIVE VOICE OF THE VERB.

135. When we wish to make the agent and his action the prominent idea of the sentence, we use the Active voice, as—*John has broken the window*; but when we wish to make the object, and the manner in

which it is affected by the action, the prominent idea, we use the Passive voice, as—*The window has been broken by John.* This inversion of the order makes the object *subject*, and the *subject* indirect object. Examples ought to be employed in which the learner may see the inversion arising from speaking of the object as the subject; and both voices ought to be used till the verbal difference is understood, and he is able to construct sentences for himself. All the moods and tenses of the Passive voice can be illustrated in the same manner.

THE INFINITIVE AND PARTICIPLE.

136. But the verb itself can be made a subject or object of thought and action, or their attributes. These are the substantive and attributive parts of the verb, and fill the places of both without parting with their verbal signification. The infinitives and participles, present and past, best serve these uses from their impersonal form.

The Infinitive : 'Tell John to come here.' 'Try to write well.' 'Will you let me go to town ?' 'We ought to love our neighbour.' 'To love God is the duty of every one.' Here the infinitive is both object and subject of the verb, because it fills the same place in conception, though itself a verb. This is another instance of abstraction, in which mere ideas are treated as realities. If the learner can be made to comprehend this, it will add to his mental forces.

The Participle : 'He is a loving child.' 'Mr. A. is a loving father.' 'Waiting for one friend, I found another.' 'Wishing you all the compliments of the season.' 'I remain &c.' 'Having written my letter, I started for London by the ten o'clock train.'

Evidently, in these and all similar instances, the participle is an attribute of the subject, and qualifies it in respect to a preceding action, by which it was affected. Its attributive nature can be made evident, from its position and conformity to the uses of the adjective, and its verbal by writing out the action in full to which it belongs, as—'When I had written my letter, I started for London.'

RELATIVE PRONOUNS AND THE COMPLEX SENTENCE.

137. So far, the development of the sentence has been internal. All the elements are accretions about its one subject and predicate. It is still a simple sentence. But, for the clearer exposition of one or both, other sentences are found necessary, requiring the aid of *relative pronouns*, *relative adverbs*, and *conjunctions.* Thus the sentence becomes complex, and increasingly abstruse to the learner. His best help will be in making these pivot-words very clear by living illustrations, showing how the subordinate actions stand related to the principal subjects and predicates. Sometimes no adjective can be found which fully supplies all that the noun requires for its exposition. A sentence is therefore resorted to which stands in an adjective relation to it, and a relative pronoun forms the connecting link between them. Hence the noun is called the antecedent, and the relative which takes its place becomes, as a pronoun, the subject or object of the subordinate sentence. The great difficulty to the learner is the suspension of the subject by this new sentence, for he will seek to connect it with the first verb as its predicate. But this can be obviated by writing out the principal sentence first, and then inserting the adjective sentence in its proper place; or by writing out the sentence in full and then removing the adjective sentence. Brackets are useful in marking off the sentences, as—'The man [who came with you from the station] is very strong.' 'The train [which has just passed] is for London.' 'The gentleman [whom you see] is mayor of this town.' In the last sentence, the adjective clause inverts the order: for *whom*, which stands first in order, is the object of *see*. This construction ought to be well illustrated, and contrasted with the examples in which the relative is the subject of the subordinate sentence. In addition to

who, *which*, and *that*, *what* is also a relative pronoun, and equivalent to *that which*, as—'This is *what* I have.' Here it is the predicate of the first sentence, and fills the place of *the thing*, and also the object of the subordinate sentence, *which* I have.

RELATIVE ADVERBS AND CONJUNCTIONS.

138. In the development of the simple sentence it is evident that two formative principles determined the construction. The first of these is motion or action; the second assertion; and in the former the prepositions and adverbs participated in the general conception by further expressing the direction, time, or manner of the motion, but in the latter all the complements of the subject or predicate are, like them, assertive. While these particles (indeclinable and invariable) indicate diverse modifications of the verb or phrase according to the nature of the relation, they are either active or assertive, and their illustration is simplified if this is remembered.

Relative adverbs: These, though implying time, place, and instrument, are also relative to the sentences with which they are associated to complete the idea of the motion or assertion.

when =	at a time at which	When I saw him he was old.
	at the time at which	When you struck him I was looking
where =	at a place at which	Where the tree falls, there it lies.
	at the place at which	Where thou diest I will die.
whither =	to a place to which	I know not whither he is gone.
	to the place to which	He came from London, whither he went last week.
whence =	from a place from which	He is gone whence he will never return.
	from the place from which	But canst not tell whence it cometh or whither it goeth.
as =	in which manner	As you like it.
whereof =	of which	The club whereof I was a member is dissolved.
wherein =	in which	The house wherein I dwell.

whereinto = into which	The pond whereinto he fell is deep.
whereon whereupon = on which	The reed whereon he leaned broke. Whereupon he rose up and went out.
whereat = at which	A target whereat to shoot.
whereby = by which	This whereby he divineth.
whereto = to which	The river whereto we came is the Thames.
wherewith wherewithal = with which	I have not wherewith to take water.
wherefore = for which reason	Wherefore he was sore displeased.

Amongst these, *whither*, *whence*, *whereof*, *whereinto*, *whereat*, *whereby*, *whereto*, and *wherewith* are all connected with motion, and may be illustrated by action. Take 'whence' as an instance. Whence is the point or place from which the motion or action starts, as 'He has returned whence he came,' or, 'To the place from which he came he has returned.' If the others are taught in this manner and the learner reproduces similar actions for himself, their meaning will become apparent. This is his best preparation for understanding those which are not connected with action.

But many of these adverbs are used interrogatively and their import is consequently modified. The subjoined list contains some not found in the former.

when? = at what time?	When did you arrive?
where? = at what place?	Where did you find your penknife?
whither? = to what place?	Whither did your brother go?
whence? = from what place?	Whence comes the snow?
why? = for what reason?	Why did he stay behind?
whether? = is it this or that?	Whether of the twain did the will of his father?
how? = in what manner? to what distance?	How did you break your pencil? How far did they walk before dinner?
whereof? = of what?	Whereof was this house built? (obs.).
wherein? = in what?	Wherein have we troubled him?
whereon or whereupon? = on what?	Whereon am I to put this book? Whereon do we stand?
whereat? = at what?	Whereat do you point?
whereby? = by what?	Whereby shall I know this?

whereto ? = to what ?	Whereto is he to carry the stones ?
wherewith ? = with what ?	Wherewith shall we build the house ?
wherefore ? = why, for what cause ?	Wherefore do you not go home ? Wherefore has he come ?
whereabouts ? = about where ?	Whereabouts did you lose your knife ?

Of these *whether*, *whence*, *where*, *how*, *whereto*, *whereby*, *whereat*, *wherewith*, and *whereabouts*, can all be connected with active verbs and illustrated by practical instances.

Again, many of these can be contrasted and their meaning thereby made more evident, as :—

here there	where ?	herein therein	wherein ?
hither thither	whither ?	hereat thereat	whereat ?
hence thence	whence ?	hereby thereby	whereby ?
hereof thereof	whereof ?	hereto thereto	whereto ?

therefore, wherefore

The grammatical terms whereby the parts of a sentence are described are very convenient for distinguishing them, but very deceptive if rigidly adhered to, for the same word has to fill different relations and in each performs a different part. *Up* is a preposition when it describes the direction of the motion to some object, as ‘ He went *up*-stairs ; ’ but an adverb when confined to the verb itself, as ‘ He got *up*.’ ‘ He bore *up* under his loss.’ *For* is a preposition, as, ‘ This peach is for you,’ or a conjunction when it expresses a reason, as, ‘ For this cause have I sent for you.’ For why ? ‘ for this reason.’ Its radical sense, according to Webster, is *to go* or *pass*. *Forasmuch* : the relative adverb *as* is here placed between *for* and its object *much*. These are only a few of many such instances furnished to direct the attention of the teacher ; full lists may be found in works on Grammatical Analysis.

CONJUNCTIONS.

139. These are the links which bind simple and subordinate sentences with principal, and the various members of compound sentences with one another. They are therefore as diverse as the ideas of action and assertion which they unite. Often material in their origin, they have become as purely abstract as adjective nouns, and therefore task the teacher to the utmost of his ability to illustrate their true signification. Few who use them constantly and with precision have ever taken the trouble to enquire their exact meaning. Acquired by hearing others use them in relation to the same things, they can afford to forego the investigation. But it is otherwise with the deaf; they have to learn them through examples furnished by their teachers, and constructed to the best of their ability so as to suggest their meaning. There is no great difficulty with some of the more obvious, but others are more abstract, and unite ideas which are themselves conditional, contingent, analogical or correlative. Better therefore not to attempt too much in a primary course, but abide by what can be made very evident and become a part of the learner's vocabulary of thought. Here, if anywhere, our maxim, 'from the simple to the complex,' or 'from the known to the unknown,' must be closely adhered to. When the grammar of the language is carefully studied, ample means will be furnished for resolving these greater difficulties, but the learner is not at present in possession of enough language to perceive their meaning. Morell has provided us with a comprehensive table of these conjunctions in his grammar (p. 90). And if it is carefully considered it will suggest a variety of expedients. His division of conjunctions, used to connect subordinate sentences with principal, into those of Time, Place, Manner, and Cause, with their complementary divisions and instances, is good. But in addition to this the teacher of the deaf will

avail himself of the aid which the active or assertive nature of the sentences will give him in working out the relations implied by the conjunctions. Those that relate to place, as *where*, *whither*, *whence*, are obvious, as 'He found his knife where he laid it.' 'He went whither he was sent.' 'He has returned whence he came.'

Conjunctions of time can also be illustrated by action: 'He was here *before* you were.' 'He is to remain *after* I leave.' 'I came in *as* he went out.' 'We saw him *as* we came out.' 'You shall have a penny *as* soon *as* you finish your work.' 'He was at work this morning *ere* the sun rose.' 'We shall have our lesson now *that* the master has come.'

Conjunctions of manner admit of active illustration : 'He does not walk *so* fast *as* Tom.' 'I can write *as fast as* you.' 'He looked *as though* he wanted to speak.' 'The river appears *as if* it was flooded.' 'Mr. A. looks *as if* he had seen better days.'

Or affirmatively : 'This slate is *as* wide *as* that.' 'Your pencil is longer *than* mine, but William's is not *so long* as either.' *As* 2 are to 4 *so* are 6 to 12. *Consequence* : 'You promised to have done at twelve, *so* that we might take a walk.' 'He came at twelve, *that* he might see his brother.'

From such examples it is very evident that most of these conjunctions can be fairly illustrated by actions, and a diligent use of them will best prepare for the more abstract class. *Conjunctions of Cause* are most concerned with abstractions and relations of ideas, which cannot be made evident to the senses, and therefore any attempt at material or mimic exhibitions of them would be pernicious. When the ideas themselves are understood, then they can be taught by instances of their use. However, *cause*, *reason*, *ground*, *condition*, *concession*, and *purpose*, employ a variety of conjunctions which admit of objective presentation. 'He struck me *because* I took his book.' 'We love him *because* he is very good.' 'The river has flooded the meadows *because* there has been much rain.' '*Since* you will not do what I say, I must make you.' '*Seeing that* you do not take care of my books, you shall not use them.' '*Seeing* you are a good boy, I give you this book.'

Condition : '*If* you get your lesson well, you shall have a half-holiday.' '*If* you do not take care, you will spill the ink on your book.' 'You can all go, *except* William.' Here *except* is a participle, William excepted. '*Except* ye repent, ye shall all likewise perish.' Here it is a conjunction, and has the force of *unless*.' '*Unless* he comes at nine I cannot see him.'

Concession : '*Notwithstanding* their losses, they still give to the poor.' '*Notwithstanding* the great rain, the river has not risen.' 'The canary sings, *notwithstanding* the severity of the cold.' 'He will go, *notwithstanding* hehas no money to pay his expenses.'

SUBJUNCTIVE MOOD.

140. This mood is employed where a condition or uncertainty has to be expressed, or when one action or affirmation depends on or is contingent on another : 'If you finish your lesson, we shall take a walk.' Here taking the walk is contingent on finishing the lesson. '*If* I go and prepare a place for you, I will return again.' *If* is its usual conjunction, but others are also employed, as, '*Unless* I see I will not believe.' 'As soon as he arrives he will visit his father.' Now the subjunctive mood ought to be learned in all its tenses and fully illustrated by suitable examples. But it ought to be added that in all these complex sentences the easiest and best illustrations can be framed by grouping a few learners into such tableaux as will fulfil the required conditions or actions and permit their immediate translation into speech or writing. The present and active excites attention and thought, and provides the relations which are wanting in the absent and imagined.

COMPOUND SENTENCE.

141. A compound sentence is composed of two or more principal sentences co-ordinate with each other. This co-ordination is *copulative*, *disjunctive*, *adversative*, or *illative*.

Simple Co-ordination is superaddition, or conjunction of one action with another : ' Come and sit down.' ' He reads and writes.' Sometimes the conjunction is omitted : ' Industry makes rich.' ' Idleness makes poor.' 'Reading makes a full man, writing a correct man, speaking a ready man.' The conjunctions employed in copulative co-ordination are *and*, *moreover*, *further*, *more*, *both*, *and*, *as well as*, *likewise*, *also*, *nor*, *neither*, &c. Let it be first ascertained what is the nature of the union, for conjunctions bind ideas together, and *stand in the same relation to the verb in mood that the preposition does to the noun in case.* ' He helped me with my lesson ; he *also* praised me when I did well.' Here *also* is cumulative rather than additional. *Moreover* is increase in number, quantity, or importance ; *furthermore*, increase in distance or weight ; *likewise*, similarity in action ; *both*, united in action.

Disjunctive : When two conjunctions formally connect two principal sentences, but disconnect or distribute their meaning, they are disjunctive, as, ' He must come *or* I will fetch him.' ' He would *neither* eat *nor* drink.' ' You may *either* stay *or* go.' ' This must be done in half-an-hour, *else* you will have to remain within while the others play.'

Adversative Conjunctions connect two assertions in direct or indirect opposition to one another : ' He came to seek for you, *but* could not find you.' ' Abel was a keeper of sheep, *but* Cain was a tiller of the ground.' Similation too, or contrast, is often implied : ' He brought me a basket of apples, *but* some of them are rotten.' ' My hand pains me much, *but* I can bear it.' 'The colour fades, *but* the substance remains.'

Illative Conjunctions are used when the second of two sentences is in logical relation to the first: 'The shadow of that tree is now at its shortest, *therefore* it is twelve o'clock.' 'Sailing at sea, you always perceive the tops of the masts of distant ships first, *wherefore* the earth is round.'

The two illative relations in which co-ordinate sentences stand to each other, are (*a*) The relation of inference or conclusion, and (*b*) The relation of effect or consequence. 'He spends his time in trifling, and *therefore* never learns his lessons well.' 'These two pieces of wood are exactly the same in length, breadth, and thickness, *therefore* they are equal.' 'You were deaf, *wherefore* you could not speak till you were taught.' 'I have added together these five columns of figures, and find that the sum of each is two hundred and fifty; *consequently*, they are equal to one another.'

142. As the object is not to write a Grammar, but exhibit a method and assist the teacher, what has been said may suffice to enable an intelligent one to find his way to such a presentation of the language as will enable the deaf to understand, speak, and write it, as if he could hear. But the whole land has not been surveyed. A main line only has been constructed, and branch lines on either side have to be carried out in all directions. Or, to quote a figure used by the Abbé Tarra, 'Our deaf-mute is like a man born and bred in the lap of a deep and narrow valley. The quality and quantity of his first impressions correspond with this confined sphere which would consist only of a few things, persons, and animals which he sees; and of the little verdure which surrounds; and the heights which, on every side, exclude the horizon. In such a mental and moral state he cares to know only those forms of language which suffice to express his perceptions and corresponding wants. To talk to him of things extraneous to the limits of his experience, would be like talking to a

highlander of ships, and ports, and sailors, who had never left his mountains ; or to an islander, of horses and carriages, who had never seen them. That which is not desired by the mind is not sought, and hence the aptitude is not there by which it might be taught. By degrees, then, as his mental and linguistic power increases, his teacher ought to lead him to climb a little higher, and see an always widening circle open before him, of objects in proportions more various and numerous, producing an ever-increasing demand for knowledge, and providing the teacher with natural and graduated opportunities of instructing him in accordance with his wants. In fine, having reached the summit of the mountain with him, the desire which is created within him, of knowing and learning, growing ever stronger and deeper, permits his elevation to that order of intelligence and of language which, apart from the material, carries him into the sphere of reflection and reason, where " The discourse kindles a great passion " —" *Pero favella gran fiamma seconda.*" Dante.

143. More practically advanced studies in language ought to be on the same lines as the development of the sentence. Co-ordination and combination of many thoughts suggested by incident, narratives, or themes, have to be learned and practised till a style is formed, in which sentences have to be employed to express thoughts about a definite subject in logical interdependence.

Better then to begin with the present and the active, and describe what others are doing, or any little incident that occurs, not by a string of similarly formed sentences, but in the various and contrasted constructions which truly reflect the relations in which the actors stand to each other. Then short narratives of past events, seen and enjoyed, as a walk in the fields, or a visit to a factory ; in fact, whatever has excited attention and left vivid impressions which can be easily revived. The future, too, might contribute some pleasant changes, and happy meetings with relatives and friends, about to take place. Then to these might be added stirring events in history, or travel, first read and explained, and afterwards written out in the learner's own words, so that he may compare them with the book, to supply deficiencies and correct defects. The use of a Dictionary to find out the meaning of new words is of great importance in the study of such narratives, for it is putting the means into the hands of the learner of helping himself, when he cannot have the help of a teacher.

To describe scenes and objects makes larger demands on the resources of the learner, for action is absent, and reflection is the chief agent. Hence the more striking and interesting, in which form, colour, situation, and use produce vivid impressions, which can be easily reproduced and expressed, ought to lead the way. These exercises accustom the eye to detect all the qualities of an object, or aspects of a scene. Pictures, too, of such scenes are helpful, for they supply what cannot be visited, and enable the teacher to point out the design of the artist in their production, and the relations of the subordinate parts to the principal. At first the descriptions might be more general, touching only the leading features, and afterwards more detailed, as language and observation increase. Questions ought also to be framed which will direct attention to every phase of thought in these descriptions, and compel a full comprehension of the whole. Sometimes, too, by asking after what is not to be seen, that which is seen becomes more real. If themes are resorted to, they ought to be on topics with which the learner has some acquaintance, else he is like one set to pump water from an empty well,—not only a loss of time, but a perversion of power, which might be employed in some profitable study.

STUDY OF GRAMMAR.

144. The method of teaching language now exhibited is founded on a simple principle. Its norm is the sentence consisting of a noun and a verb. Building on this all the forms of thought advance up to the compound sentence. It may therefore be called intuitive-logical, for it accepts the teaching of nature,—the beginning of thought and language—and pursues the development of the sentence as subject and predicate, carrying it to its most complex and compound forms, till it becomes a complete instrument of thought. The Grammatical shape it has necessarily received permits the teacher to conduct his pupil to new conquests as he has ability. But he conceals his tools till his work is done. Hence the learner stands in the same relation to language as one who hears, and whose stock of words and power of expression have grown with his unceasing contact with every-day life. Seemingly without rule or method, he has been all the time controlled and directed by the laws of thought, till he finds himself enabled to retrace his steps and discover the way for himself. Synthetic in form, it is analytic in principle, for by gradually introducing each part of speech in its various relations and modifications, it assigns to it place and value, so that fullest preparation is made for the after study of Grammar. In fact the names and definitions have only to be supplied and illustrated to enable the learner to take down what he has assisted in building, and ascertain the value of each part in relation to the whole structure. And this is our answer to all those who object to teaching Grammar to the deaf. It is evidently a part of their mental training, for it stands in the same relation to language as chemistry to matter. By reducing it to its elements, our mastery over it for new combinations is increased while they are grasped with a fuller knowledge of their uses. Again, if the deaf are to receive a liberal education,—to which they are better

entitled than any other class, as a compensation for their limited means of enjoyment,—then a grammatical knowledge of their own language is the best preparation for learning other languages, as well as the best means of increasing the knowledge and mastery of their own. Experience, in their case, has proved that translating from one language into another presents thought in all its forms of expression, and leads to the selection of the right word out of many synonymous ones to render the exact meaning of an author. Thus words, if we may so express it, are manipulated in translating as they never would have been in the study of the mother tongue ; and the more they are subjected to this process, the better is their meaning discerned, and the greater is the power over them in original composition. The educated deaf can and ought to learn at least one language in addition to their own, if for no other purpose. The range of its grammar, and the numerous exercises and readings attendant on its acquisition, would bring under review the differences of structure and idiom of their own, which had been overlooked in its primary study.

Let us not forget that a thorough knowledge of language is essential to the mental development of the deaf. But as the ear which would have supplied the greater part of the form and the matter is closed, the eye has to take its place. Now there are two ways in which this can be done. Either by lip-reading or by books. But lip-reading is limited in range and opportunity ; while we who hear are constantly interchanging thoughts with one another, they are sitting in absolute silence. The sounds that convey them to everyone else do not enter their ears, and only at intervals, perhaps too far apart, is this solitude broken. At the best, this means is inadequate to the service. The other is by books, and never was Cicero's splendid eulogium in Archias the Poet more true of them than in their case. If they can be read with ease and pleasure, books can compensate them to a great extent for their loss. But this is impossible without a thorough knowledge of the language. It ought therefore to be studied synthetically, analytically, and under the lights of a foreign tongue till the thoughts of others find immediate interpretation, and their own fitting expression. There is nothing to prevent it but the insufficiency of the methods we employ. We must therefore improve them. But this will never be done by a slavish devotion to old systems. The French are now abandoning De l'Epée's method, though most in accordance with their love of gesticulating. No doubt it is very picturesque and very stirring, but like a rude uncultivated dialect abounding in figures of speech, it must yield to the most polished language of Europe. Englishmen take a long time to make up their minds; but, once convinced, their practical wisdom and restless energy carry them ahead of their neighbours.

145. The attentive reader of this exposition must have perceived that great importance from the first has been attached to whatever might contribute to arouse, attract and impress the mind of the learner, and with good reason, for there is no class who suffer so much that tends to depress, cripple, and mentally enfeeble as do the deaf. They are asleep and need to be awaked, and the only healthy means are those which through hearing awake other children. That they may live, their teachers must live intensely, and every branch of primary education ought to be a stimulant. Arithmetic is good in its place, and ought to be taught from the first, but there is more in the history of animals, with good illustrations, physical geography, flowers, plants, and all the bright and stirring things of the great world, which contribute to the knowledge of language. Little stories, questions, and new forms of sentences can be framed on these, and their meaning made evident by the facts and movements which delight the learner. In fact, every study should contribute to the culture of reason and language, for in this way only will the fulness of life be brought into contact with their minds and make amends for their loss of hearing. The most wonderful movements that excite attention and prompt enquiry are those of the sun, moon, and stars. The deaf have the

strangest notions about them. Make them tell their own tale, and speak their Maker's praise by explaining their grand evolutions, and their agency in the production, not of light and heat only, but of cloud, rain, hail, snow, and frost. Enough can be understood by them to enable them to pass in thought from one flaming world to another, and to contemplate the precision and mutual dependency of their motions. Science is at home in our village schools, and ought not to be absent where it is far more needed. The deaf know nothing of the concord of sweet sounds ; then let them know the higher harmonies of Nature's Laws and Revealed Truth. Instructed as we have described, the many Primers recently published by men of science, as well as the books provided for middle-class schools, can be taken up and studied by them, so that they may participate in all the improvements of modern education. Nature has failed to provide these afflicted children with all the senses requisite for their free mental development. Let us strive, not to restore the lost one, which is impossible, but so to cultivate those which remain as to reduce the evil to its minimum, and thus prove that the Spirit of Christ in His servants can persuade Nature to yield to their benevolent designs and make some amends for her failure.

Πάντα ὑπέταξας ὑποκάτω τῶν ποδῶν αὐτοῦ.
Heb. ii. 8.

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